

Padlock handbook




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EMMITSBURG, MARYLAND 21727

PADLOCK KEY MAKING..

a review of reading and
impressioning methods.

One of the most common requests made of the average locksmith is to make a key for a lock to which the keys have been lost. This calls for use of the highest skills a locksmith can possess. The locksmith who has confidence in his skills can do this job easily and quickly. He has two choices to make the key *profitably* - - either to "read" the tumblers of the lock or to "impression" the lock. Each of these methods of fitting a key requires different techniques.

When called upon to fit a key, the average locksmith instinctively looks into the keyway of the lock. It does not matter whether the lock is a padlock, cabinet lock, or any other type of cylinder. The first glance tells the locksmith whether it is a disc tumbler or a pin tumbler lock.

In the case of the disc tumbler lock, it will be evident immediately that there are variations in height of the *inside* portion of each disc. The reason is that all discs, in any given lock, have the same outside shape (Figure 1), since all discs must conform to the outside circumference of the plug. It is the *inside* of the discs that varies. When five different height discs are placed one on top of another, with the shortest on top and the deepest on the bottom, the inside edges would form definite steps, (Figure 2 shows magnified view).

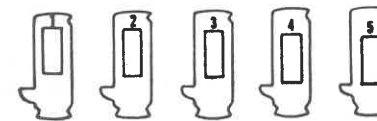


Figure 1

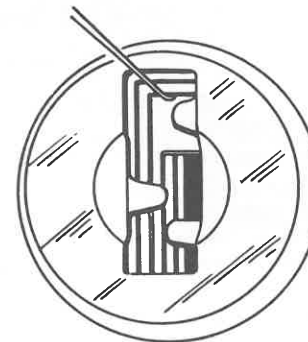


Figure 3

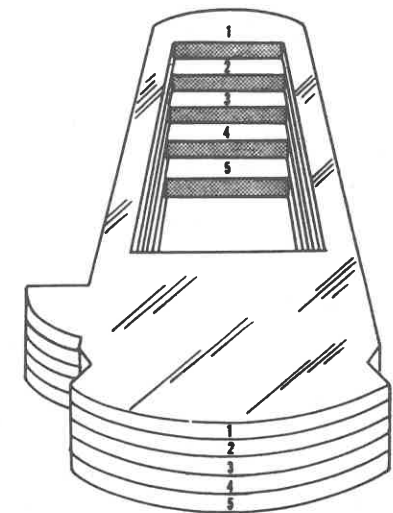


Figure 2

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If a stack of discs is placed in the correct slots of a plug, the view would be the same. However, there would be a space between each as shown in Figure 3.

This is exactly what happens in any disc lock. The steps or differences in height of these discs can be as little as .015" or as much as .025". In all cases, the difference in the steps is visible to the trained eye of the locksmith.

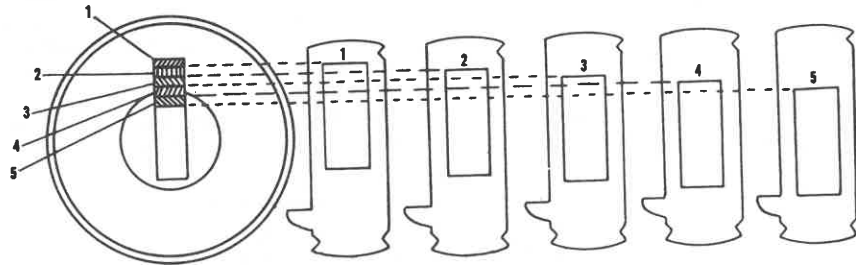


Figure 4

To read the differences in the steps (or depths of the discs), the eye must be trained to gauge the several heights *in relation to a part of the keyway*, as well as in relation to each other, (Fig. 4).

A depth 1 disc has the shortest distance from the center notch of the tumbler to the top of the keyway. Conversely, a depth 5 disc is the longest of all and would be seen at the lowest point of all in the keyway.

Reading a lock takes a lot of practice, just as any other facet of locksmithing! But it is handy for fitting keys to disc tumbler locks. If one has taken the time to practice reading disc depths, it can be done literally within seconds. It is the preferred method of making keys for disc locks when original keys are lost. After the depths of a disc lock are read, the change key can be cut on a code machine or by the use of depth keys which give accurate spacing and depths.

It is also possible to read the depths of some pin tumbler locks. However, since the tolerances of the pin tumbler lock are closer, and the steps are more numerous, the preferred method of cutting the key is to *impression* this type of lock.

IMPRESSIONING

Impressioning a lock takes practice *and* practice and practice. But, once the skill is learned, it is never forgotten.

The theory of impressioning a pin tumbler lock rests on the fact that there are pins of varying lengths in the cylinder. Usually, the longest pin will bind upon being partially turned between the plug and the body as seen in Figure 5. In so binding, the pin will make a mark on a blank key. This mark looks very much like that shown in Figure 6.

Before impressioning, the locksmith must be sure that the lock is clean and that all pins move freely within the respective holes. The cylinder can be placed in a vice as seen in Figure 7. Next, using the correct blank, the edge of the blade is polished

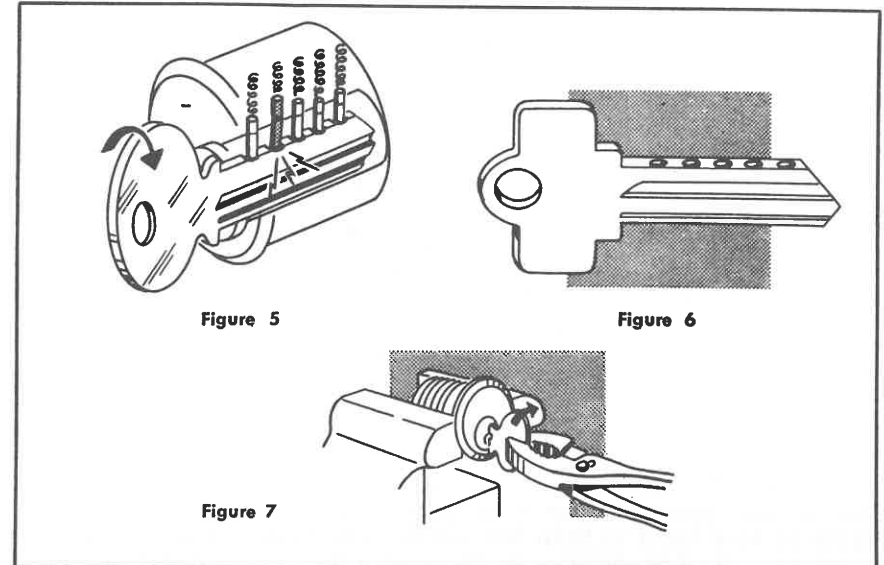


Figure 5

Figure 6

Figure 7

to remove pits and the slight surface hardness. Then, the blank is put in a holder, which can be specially made for the purpose (or a pair of parallel jaw pliers or even a C clamp) and the blank is inserted in the lock.

At this point, some locksmiths "bounce" or rap the lock top so that the pins are jarred downward. The shock of bouncing will usually cause all pins to make slight indentations in the top of the key blank. These serve to indicate the *spacing* of the lock.

Using a round Swiss pattern file, with a No. 4 cut, a slight notch is carefully filed in the top of the blank wherever there is a pit mark. In effect, this notch makes a zero cut for all pins in the new blank. The smooth pattern file will polish these cuts in all positions.

Now, the key is reinserted in the lock and turning pressure applied. This pressure should be firm and to the right (clockwise). It should NOT be forceful enough to break the blank.

Also, the blank is wiggled or moved, up and down and sideways — but NOT in and out. After doing this twisting and rocking motion several times, the turning pressure is released. Then, the operation is repeated several times more.

Upon removing the blank from the lock, the blank is carefully examined under a good light. It is important that the blank be rolled under the light so that a shadow is cast in the one or several impression marks that will appear on the key. Sometimes a good magnifying glass is necessary to see the marks clearly.

WHERE EVER THERE IS A MARK, USE THE No. 4 FILE AND MAKE A CUT IN THE KEY. If no mark appears, do NOT file the key. After filing, the key is inserted in the lock and wiggled for more impression marks.

Some locksmiths prefer to stay on one cut until no further impression marks appear. Others will file all marks that appear. Whatever method is used, however, the process is repeated, that is, alternately applying torque to the key in the lock and removing the blank to file at the mark.

When any given pin reaches its shear line, it will stop marking. Also, there are times when a pin will stop marking because there are other longer pins in the cylinder. The entire process should be continued until the key "passes."

Many names have been given to the impression system. It has been called the "wobble" system, the "rocking" system, the "tapping" system and the "pull-out" system. All mean the same thing. In all cases, the key is inserted in the lock, turning pressure is exerted and the key is moved slightly within the lock. It is this combination of turning and moving the blank that makes the mark on the key.

An expert can impression some of the small car locks in as little as one minute. There is no set rule as to how much to wiggle or how hard to turn the blank. The action is the result of experience. And experience in impressing can be obtained only through practice, practice and practice.

Rekey Padlock Loads Plug Using Top Pin Retainer Tool

The Rekey padlock, now being marketed by Almont Lock Company, Almont, Michigan, features a special slotted plug which permits removal of the plug for rekeying without dropping the top pins. The slot in the plug, which is cut to the left of the keyway, allows the use of a special loading tool to be inserted to hold up the top pins as the plug is being removed or reinserted.

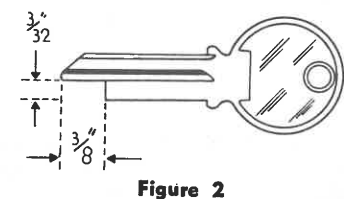
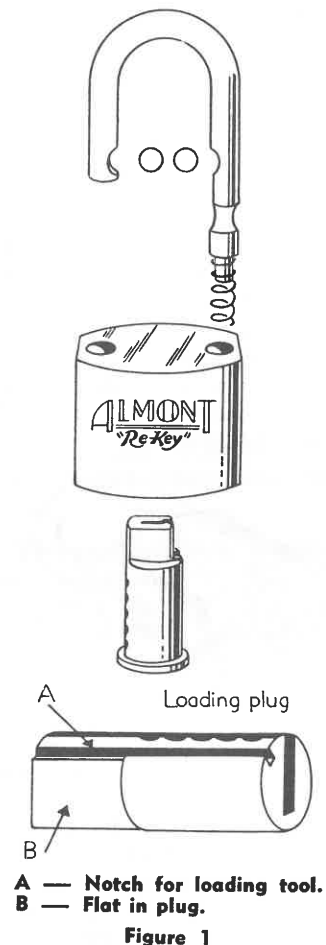
Another feature of the Rekey padlock is its locking balls, which are activated by the plug rotation to lock or free the shackle. A minimum of parts is used in activating the balls since the plug tailpiece forms the cam which moves the balls. (See Figure 1). Also available for the padlock is a series of special loading plugs which are used to load the top pins and springs into the top pin chambers.

The operating plug is held into the padlock case by a small circular retainer lug which extends into the plug hole. When an operating key is used, this lug forms the stop that prevents the plug from over-rotating.

To over-rotate the plug for removal, however, a special change key is used.

The change key has the same cuts as the operating key but it has an additional notch in the bottom of the shank to bypass the retainer lug. (See Figure 2).

The change key can be made in the shop by merely duplicat-



ing the cuts on a proper blank and by filing a notch $3/32$ " deep and $3/8$ " wide, as shown in Figure 2.

To remove the plug, the change key (with notch in bottom) is inserted into the keyway and turned to its maximum rotation. At this point, the padlock should be turned so that the notch in the plug (next to the keyway) is facing down. This notch, which runs the length of the plug, will rest over the top pins. The pins will not slide in the notch since the width of the notch is narrower than the width of the pins.

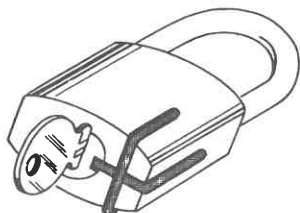


Figure 3

The pin-retainer tool, shown in Figure 3, then is inserted fully into the notch; by so doing, the prong of the tool will slide under the top pins and hold them in position as the plug is being withdrawn. To withdraw the plug, rotate the padlock with the pin-retainer tool on top, press in on the shackle and pull back on the key. Combination changes of the key then are made in the normal manner and the plug replaced by reversing its removal.

The pin-retainer tool also can be used for loading the pins into the upper chambers if complete rekeying is required. This is accomplished by using special loading cylinders, a cylinder sleeve and a flat bladed tool for

raising the top pins. The loading cylinders are standard plugs which do not have the keyway grooving but have straight slots cut through the length of the plugs in line with the pin holes.

To load the upper pins, the loading cylinder is first inserted partially into a loading sleeve. Then, the pins and springs are placed in their respective holes and the sleeve is moved forward over each hole, compressing the springs into the loading plug. (See Figure 4).

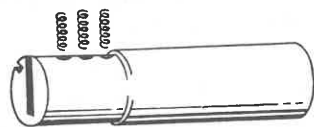


Figure 4

Before proceeding further it is necessary to load the locking ball into the short shackle hole. This is done by holding the lock as shown in Figure 5 and by dropping the ball into plug hole and pushing it into the shackle hole.

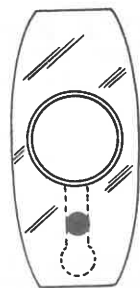


Figure 5

While keeping the padlock in the same position, the sleeve with the loading plug is inserted into the counter-bore of the plug hole. The position of the large slot in the loading plug should be as shown in Figure 6. Then, the plug is pushed into the pad-

lock using a pencil and the sleeve is removed.

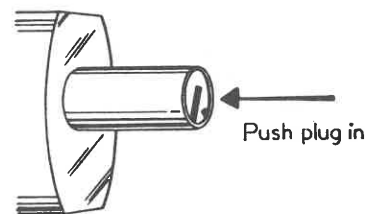


Figure 6

The tip of the flat brass tool (provided with lock) is inserted into the large slot and the loading plug is turned to align the drivers and springs with the top pin chambers. At this point, the aligning groove mark on the front end of the loading plug should be aligned with the bottom of the padlock case, after which the plug is wiggled slightly and the flat bladed tool is pushed in all the way. (See Figure 7).

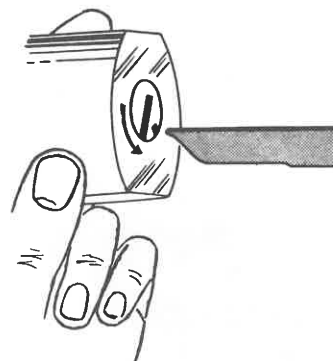


Figure 7

As the flat bladed tool enters the plug, it will raise the springs and drivers (top pins) into the top chambers. Now, by turning the loading plug as shown in Figure 8, the small slot in the plug will align with the top pin chambers and the loading tool can be inserted as shown in



Figure 8

Figure 8. The loading tool will hold the top pins in position while the loading plug is removed and while the operating plug with the bottom pins is inserted.

CAUTION! Always hold the wire tool in while removing the plugs.

The padlock now is ready for its final assembly. The shackle and its spring is inserted into the long shackle hole. The second locking ball is dropped into the plug hole. The padlock is held level (with the name up) and the operating plug is inserted into the plug hole. Note that the slot in the plug must be lined up with the prong of the wire tool holding up the top pins.

The operating plug then is pushed all the way in and, while holding the plug in position, the wire tool is withdrawn. The tip of the operating key can be used to turn the plug to its locked position. This also will engage the plug with its retainer lug. The key now can be used to operate the padlock.

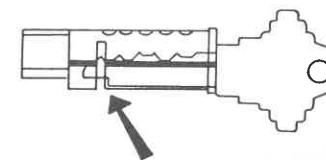
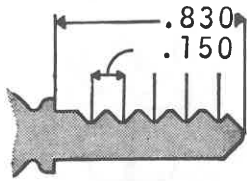


Figure 9

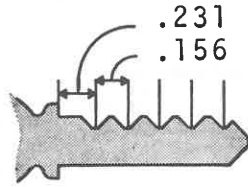
ALMONT BEST



0	.325	5	.262
1	.312	6	.250
2	.300	7	.237
3	.287	8	.225
4	.275	9	.212

DISTANCE FROM
BOTTOM OF BLANK

ALMONT SCHLAGE

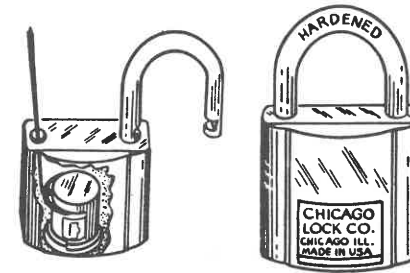


0	.335	5	.260
1	.320	6	.245
2	.305	7	.230
3	.290	8	.215
4	.275	9	.200

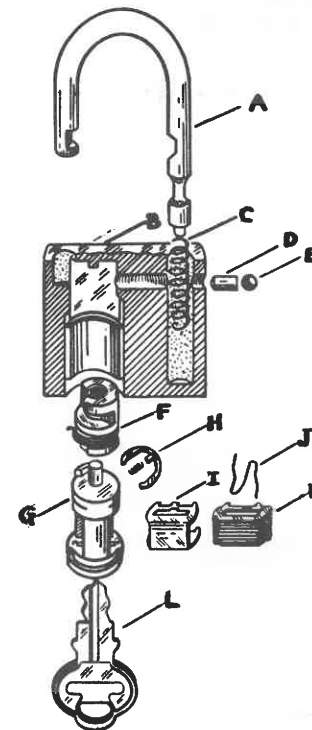
DISTANCE FROM
BOTTOM OF BLANK

CHICAGO PADLOCK NO. 741

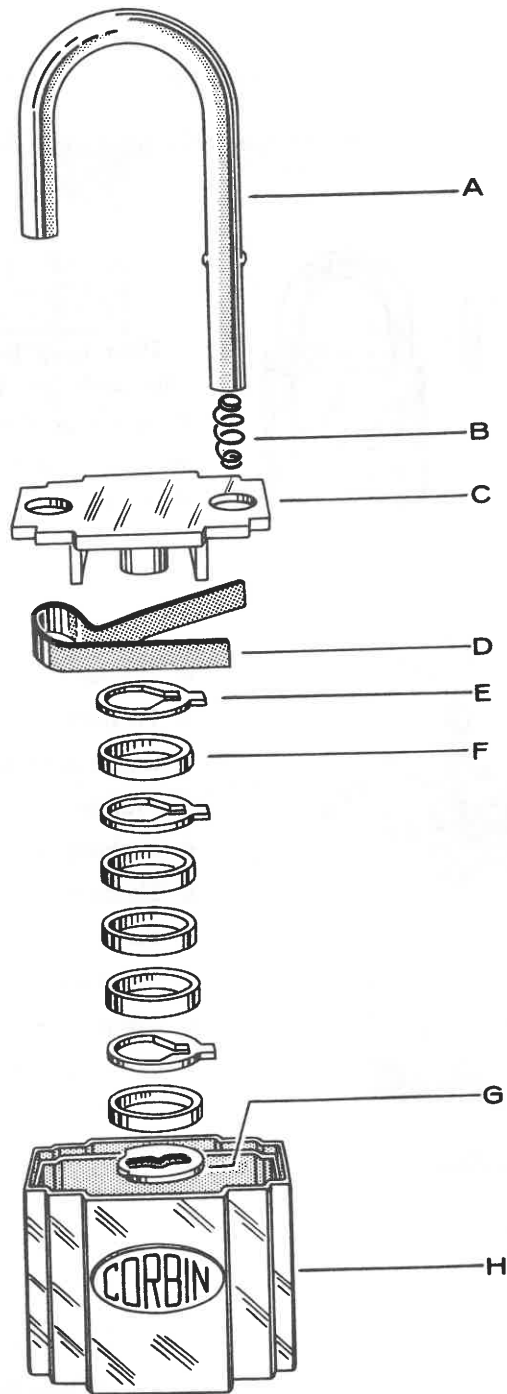
Manufactured by Chicago Lock Company, Chicago, Illinois



Plug may be removed from this lock by inserting a stiff spring wire through the shackle hole to depress the retaining clip as shown in illustration.



- a. Hardened shackle
- b. Padlock body
- c. Shackle spring
- d. Plunger
- e. Locking ball
- f. Shackle release assembly
- g. Plug
- h. Retaining clip
- i. Discs carrier
- j. Discs spring
- k. Discs (11)
- l. Key



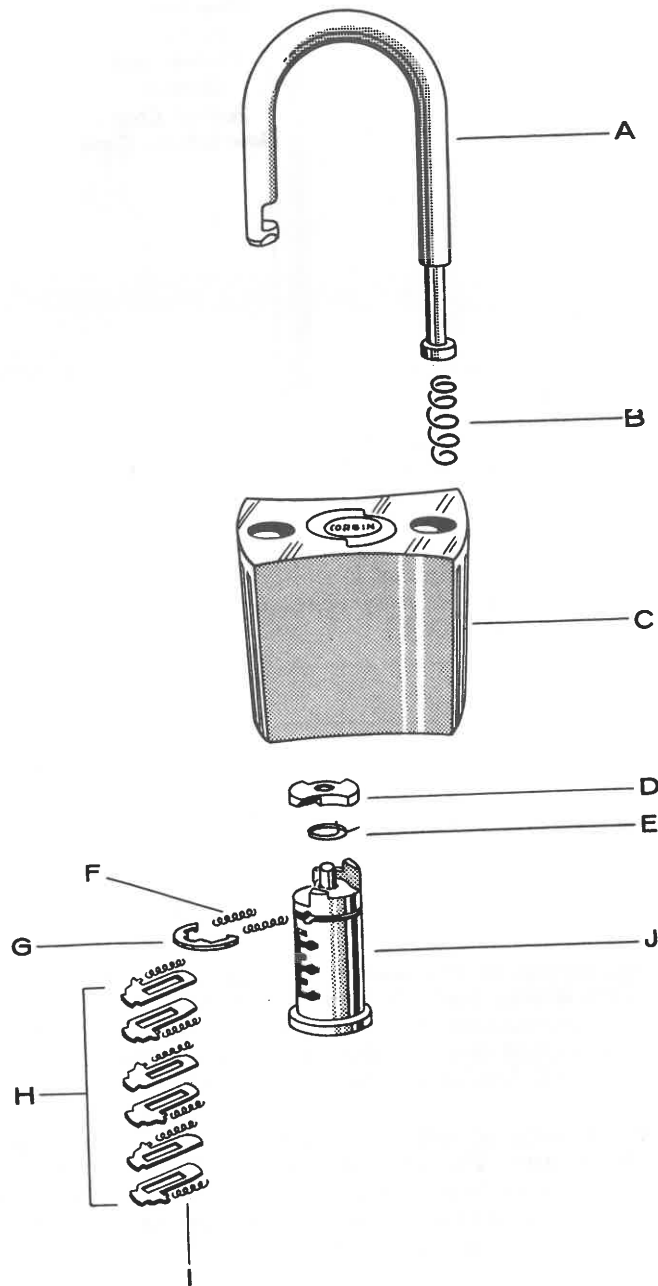
Corbin No. P-45
PADLOCK

Manufactured
by Corbin
Cabinet Lock
Division,
Emhart Corp.,
New Britain, Conn.

- A - Shackle
- B - Shackle Spring
- C - Top Cap
- D - Shackle Locking Spring
- E - Key Wards
- F - Spacer Disc
- G - Keyway Plate
- H - Case

Locksmith service on this warded padlock is limited to opening and key fitting. Disassembly normally is not practical for this padlock because of the type of construction. Both the case and the top cap are die cast and are pressure fitted one into the other. As a result, attempts to disassemble the unit will damage the case.

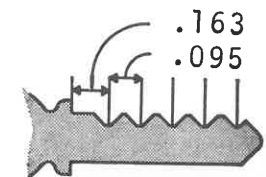
The locking units consist of three wards that are arranged into a stack with spacer discs. The wards and spacers fit into a plug-like recess in the case. Cuts of the key are determined by the position of the wards in the stack of spacers and wards. Also housed in the case is the locking spring that secures the shackle at the heel.



- A - Shackle
- B - Shackle spring
- C - Case
- D - Bolt
- E - Bolt spring
- F - Retainer clip springs
- G - Retainer clip
- H - Discs
- I - Disc springs
- J - Plug

**CORBIN HUSKI
No. 66 PADLOCK**

Manufactured by
Corbin Cabinet
Lock Division
Emhart Corporation
New Britain, Conn.

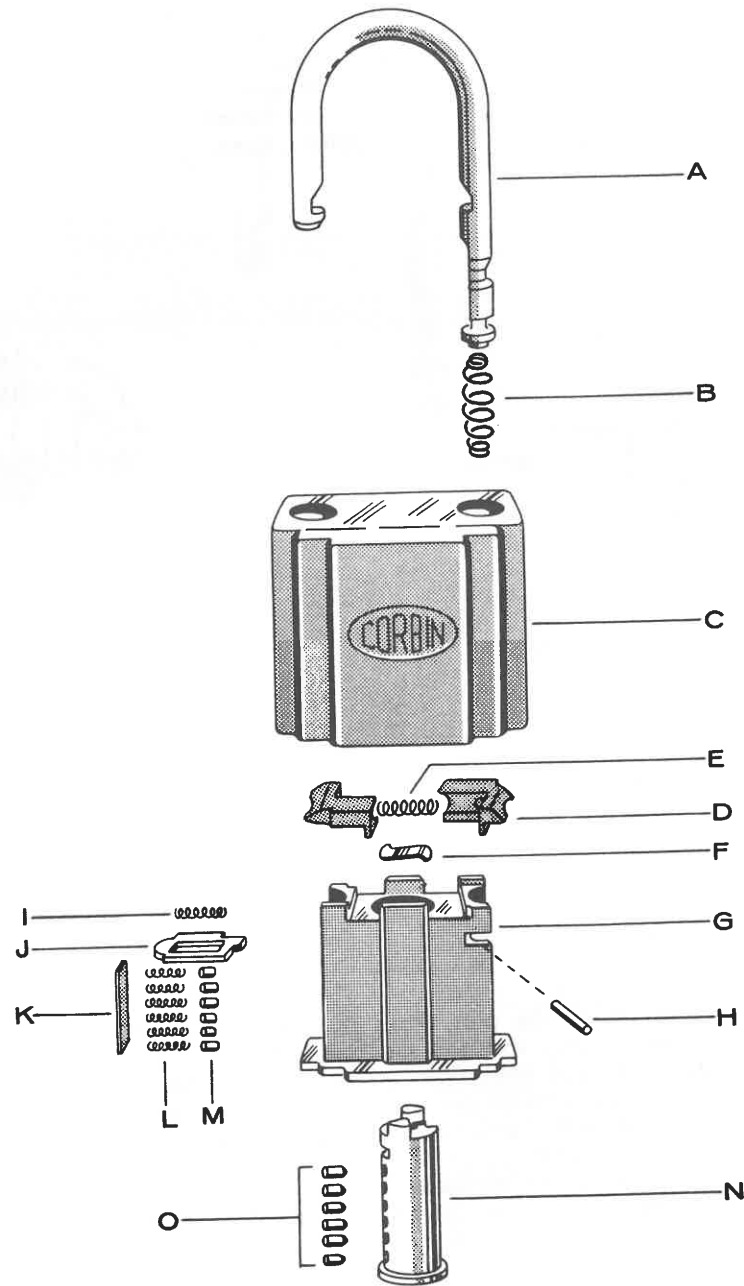


0		5	.187
1	.247	6	
2		7	
3	.217	8	
4		9	

DISTANCE FROM
BOTTOM OF BLANK

Removal of the plug from the Huski No. 66 padlock can be accomplished quickly with the shackle open. The plug is a six disc tumbler unit and it is held within the case by a spring loaded retainer clip in the seventh or last tumbler position. The clip can be depressed by inserting a hook shaped tool into the open shackle hole, after which the plug can be pulled from the case.

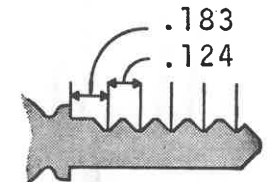
The case of this padlock is a one piece, die cast part, finished in a metallic spray paint. The shackle is hardened and zinc plated.



CORBIN P-95 PADLOCK

Manufactured by Corbin Cabinet
Lock Division, Enhart Corporation,
New Britain, Conn.

- A - Shackle
- B - Shackle Spring
- C - Case
- D - Shackle Bolts
- E - Shackle Bolt Spring
- F - Keyway Guard (Baffle Plate)
- G - Inner Housing
- H - Shackle Retainer Pin
- I - Plug Retainer Spring
- J - Plug Retainer
- K - Slide Plate
- L - Springs
- M - Top Pins
- N - Plug
- O - Bottom Pins



0	.278	5	.216
1	.267	6	.200
2	.255	7	.184
3	.243	8	.174
4	.229	9	

DISTANCE FROM
BOTTOM OF BLANK

Two major components make up this padlock: an outer case and an inner housing which contains the cylinder. The inner housing fits within the outer case and it is held secure by the bottom edges of the case which are pressure fitted over the housing. Because of this type of retention, it generally is not practical to disassemble this padlock since the outer case will be damaged beyond repair. Both the outer case and the inner housing are die cast parts.

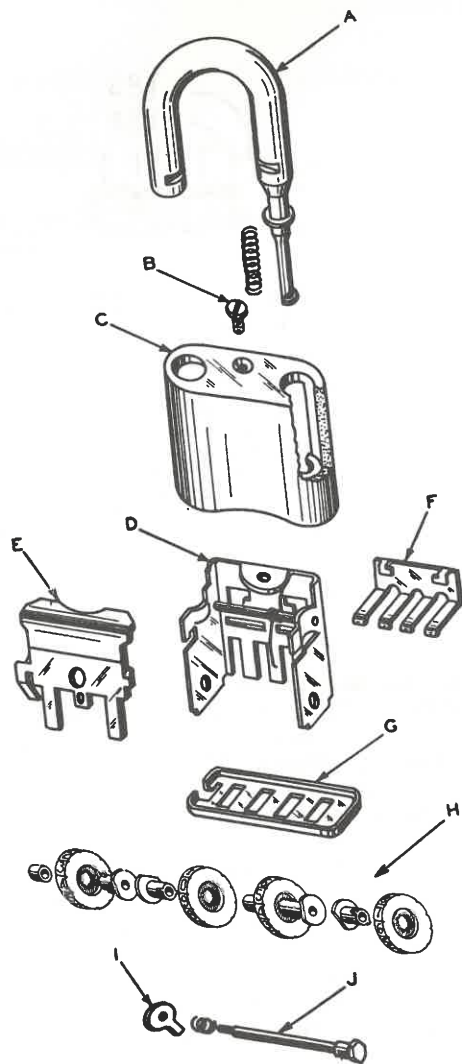
The inner housing contains the plug and the top pins. A spring loaded retainer holds the plug within the housing. Also, a brass slide plate is used on the side of the housing to secure the upper pins and springs in the pin chambers.

The end of the brass plug has two lugs that activate the two shackle bolts locking the shackle heel and toe. And, the end of the plug is equipped with a keyway guard or baffle plate that prevents attempts to manipulate the bolts.



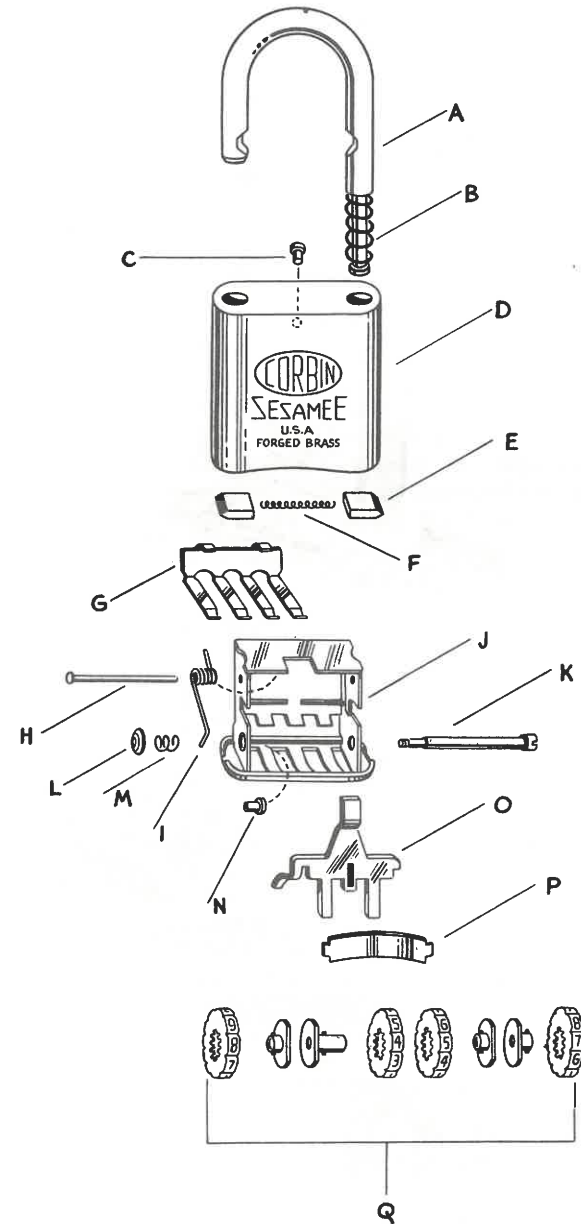
**No. 4
SESAMEE COMBINATION
PADLOCK NO. 436**

(made by Corbin Cabinet)
Forged brass body. Hardened steel shackle 1 3/4".

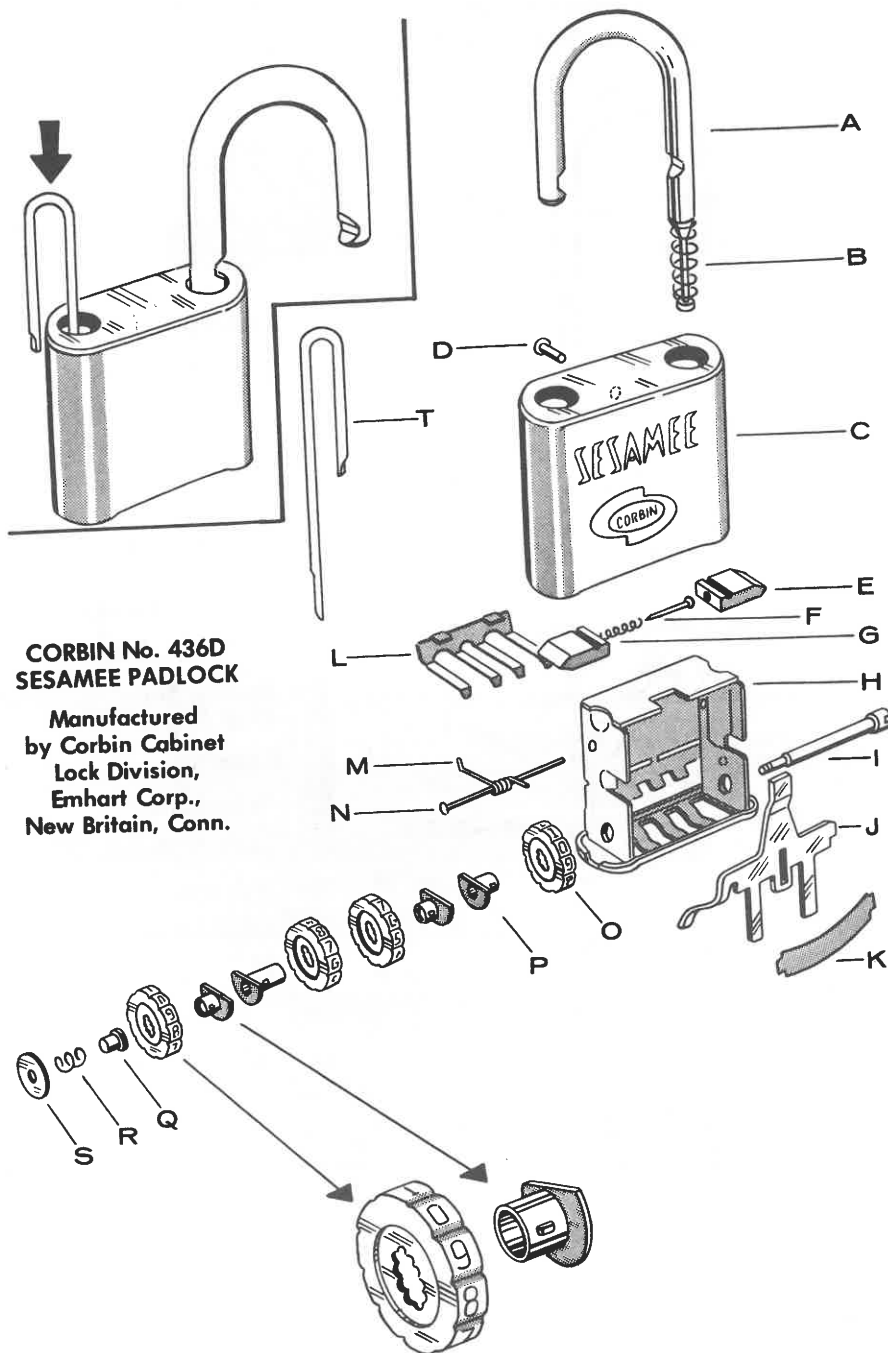


- A. Shackle and spring
- B. Retaining screw to hold locking body in case
- C. Case (cut-away portion shows half-round shoulder that holds shackle in case)
- D. Body chassis
- E. Locking plate (see Fig. A for principle of operation)
- F. Spring plate. The projecting leaves put pressure on wheels and act as ratchet stop.
- G. Bottom chassis plate
- H. Combination wheels and sliding bearings. The wings on the bearings fit into the inner notches of the wheels to form the combination.
- I. Combination changing lever; used to push bearing out of wheels so that their positions may be changed.
- J. Bearing pin to hold wheel and assembly in alignment. (The small spring returns the bearings into the wheel notches when the lever is released.)

Corbin Sesamee Padlock (Improved)
Manufactured by Corbin Cabinet Lock Division,
American Hardware Corp., New Britain, Conn.



- A. Shackle
- B. Shackle Spring
- C. Rivet
- D. Case
- E. Bolts
- F. Bolt Spring
- G. Stop Leaves (for wheels Q)
- H. Fulcrum Pin
- I. Spring for Dog Plate "O"
- J. Housing
- K. Wheel Shaft
- L. Lock Nut for "K"
- M. Pressure Spring
- N. Bearing for "K"
- O. Dog Plate
- P. Anti-vibrator
- Q. Wheel Assembly



**CORBIN No. 436D
SESAMEE PADLOCK**

Manufactured
by Corbin Cabinet
Lock Division,
Emhart Corp.,
New Britain, Conn.

- A - Shackle
- B - Shackle Spring
- C - Case
- D - Rivet
- E - Bolts
- F - Alignment Pin
- G - Bolt Spring
- H - Housing
- I - Wheel Shaft
- J - Dog Plate
- K - Anti-Vibrator
- L - Stop Lever Plate
- M - Spring for Dog Plate
- N - Spring Pivot Pin
- O - Wheels
- P - Slide Bearing
- Q - Bearing
- R - Pressure Spring
- S - Lock Nut for Wheel Shaft
- T - Changing Key

The Sesamee padlock is an all brass combination lock capable of 10,000 different combinations. It has two major components: an outer case, which is cast out of powdered brass, and an inner housing, which fits into the case. A rivet visible in the back of the case, fastens the housing in the case.

The housing contains the combination wheel pack mechanism, the dog plate, which prevents retraction of the bolts, and the stop lever plate, which controls the action of the dog plate. There are four wheels in the pack and each wheel has its own slide bearing. Each slide bearing has a flat on one side and this flat is the unit that governs the opening action.

In this action, the rotation of a wheel to its opening number will present the flat surface against the legs of the dog plate. When this occurs, the dog plate is free to move. As it moves, it removes a barrier that separates the two locking bolts, with the result that the bolts and the shackle can be released.

The slide bearings face each other in pairs, but operate independently with only one wheel. Each bearing has an extruded boss which fits into any one of the ten inside notches of its wheel. And, the slide bearing and its wheel are held together by spring pressure and thus move as a unit.

In the operating position, the legs of the dog plate rest on the periphery of the slide bearing pairs. As the wheels are rotated, and the correct number places the flat of the bearings to the leg, space is provided for the dog plate to move. Naturally, all slide bearings must present the flat surface to the legs in order for the dogging plate to move and any bearing which does not will block the dog plate.

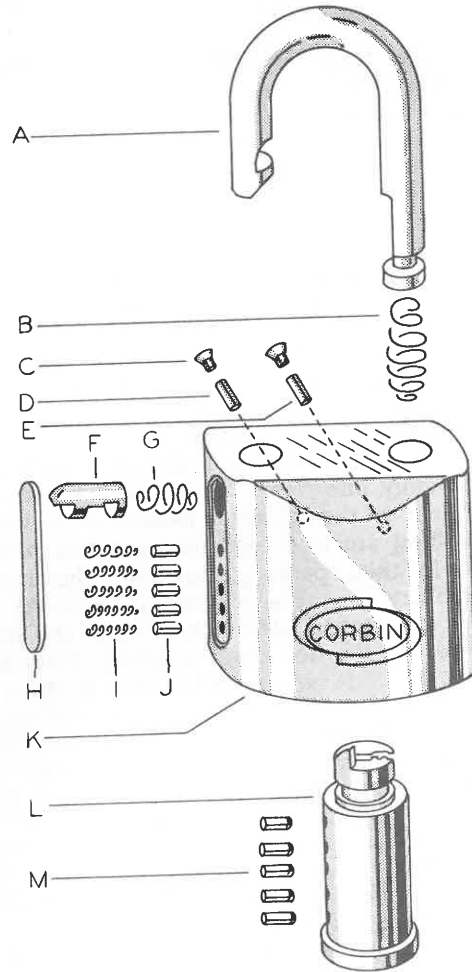
Opening the shackle requires an inward push for release. The inward push will squeeze the bolts together and allow the release of the shackle. The shackle, being hardened steel, zinc plated, locks heel and toes by the two hardened bolts.

Changing the combination is accomplished with the aid of a changing key. The factory combination is 0-0-0-0 and this can be reset as needed by the following method: Open the shackle with the factory or previous combination. Peer inside the shackle hole and locate a small hole. Insert the changing key into this hole and push it all the way into the bottom of the case. This action will release the spring pressure on the wheel pack and will disengage each slide bearing from its wheel. In this position, each slide bearing will remain rigid while its wheel can be rotated to any position. Withdraw the key to place the wheel pack under tension and to lock in the combination.

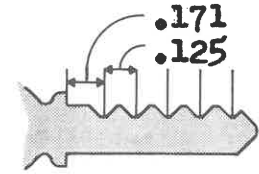
In order to disassemble the lock, it is necessary to drill out the rivet visible in the back of the case. For reassembly, a new rivet must be used.

No. 2881 PADLOCK

Manufactured by
Corbin Cabinet Lock
Division,
Emhart Corp.,
New Britain, Conn.



- A - Shackle
- B - Shackle Spring
- C - Retainer Pin Cap Screws
- D - Plug Retainer Pin
- E - Shackle Retainer Pin
- F - Bolt
- G - Bolt Spring
- H - Pin Chamber Cover Plate
- I - Top Pin Springs
- J - Top Pins
- K - Case
- L - Plug
- M - Bottom Pins



0		5	.235
1	.285	6	.222
2	.272	7	.210
3	.260	8	.197
4	.247	9	.185

DISTANCE FROM
BOTTOM OF BLANK

The Corbin No. 2881 padlock has a solid extruded brass case and a solid brass shackle, as well as a brass plug and cover plate. Both the plug and the shackle are held in the case by two steel retaining pins which are hidden by cap screws. The cover plate, which secures the springs and pins in the pin chambers is pressure fitted into a recess in the side of the case.

Rekeying should be done by removing both the cover plate and the plug. To remove the cover plate, open the shackle and insert a steel punch into the shackle hole. Tap the punch gently to loosen the plate and carefully force it out of its recess in the case. Care should be taken in this step to avoid damage to the edges of the plate, which would be obvious in replacement. At this point, the pins and springs can be dumped from the case.

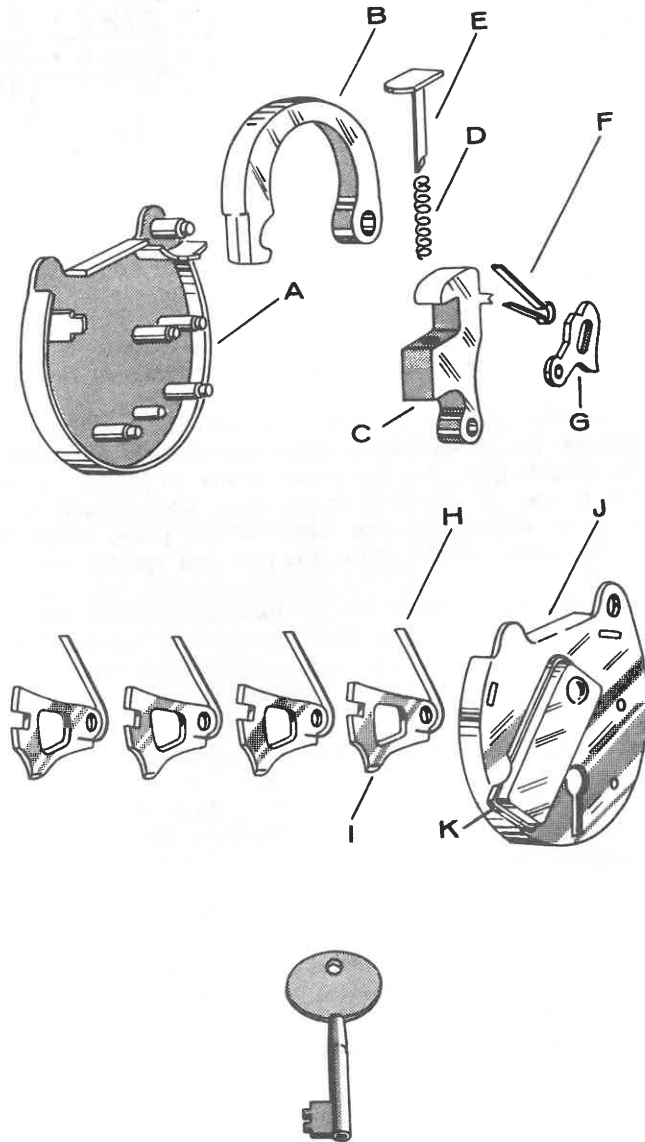
To remove the plug, locate on the back of the lock the cap screw which covers the plug retainer pin. This cap screw is located 7/16" down from the top and 9/16" in from the right edge of the case. After dropping out the pin, the plug can be removed for rekeying in the normal manner.

When replacing the slide plate, bend the plate into a slight angle so that the whole plate will fit under the edges of the recess in the case. Tap the plate to straighten it out and set it flush into the recess. Peen if necessary to hide all edges. Dressing with a file or belt sander will restore the original finish, not only for the slide plate but also for the plug cap screws.

Note - if correct size pins are available, it may not be necessary to remove the plug. Also, if the shackle must be removed, the shackle retainer pin must be dropped from the case. This retainer pin is covered by a cap screw, located on the back of the case, 9/16" down from the top and 3/8" in from the left side of the case.

**CORBIN No. 2951G
LEVER PADLOCK**

**Manufactured
by Corbin Cabinet
Lock Division,
Emhart Corp.,
New Britain, Conn.**



- A - Case
- B - Shackle
- C - Bolt
- D - Shackle Release Spring
- E - Shackle Release Plunger
- F - Bolt Release Plunger Spring
- G - Bolt Release Lever
- H - Lever Springs
- I - Levers
- J - Case Cover
- K - Dust Cover

This padlock, referred to as a railroad lock, is a lever padlock built to withstand long exposure to weather. It is designed to operate in all temperature extremes on, for example, gates to railroad yards. It has a pressed steel, cadmium plated case, a malleable iron shackle and either four or six levers. Another model (02951) has a wrought brass case and a bronze shackle.

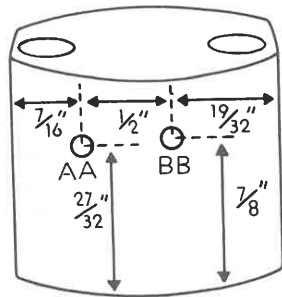
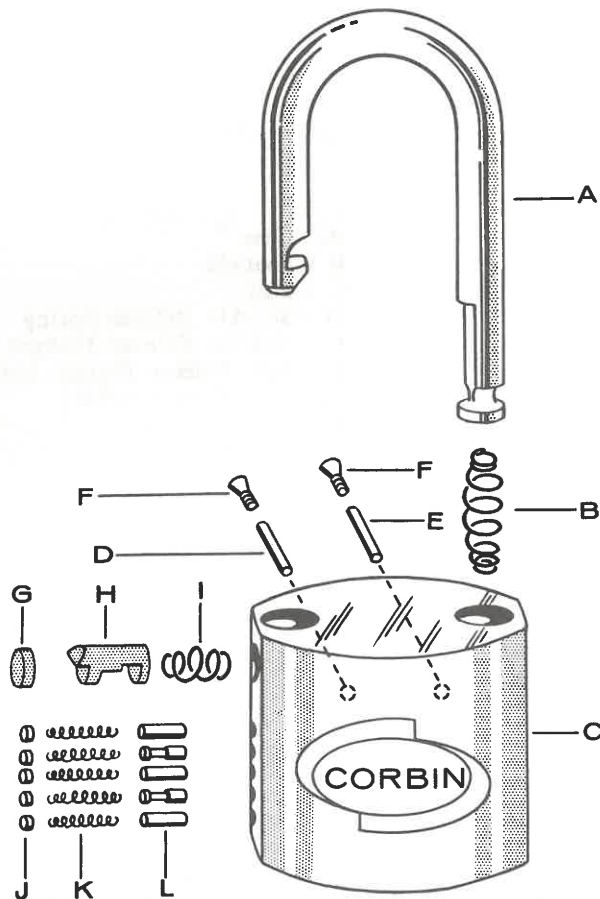
The lock operates with a barrel key that is made of nickel-plated bronze for durability. Wing cuts in the barrel key lift the levers to align the gate openings, thus allowing the bolt to pass into the gates. As the key is turned, the bolt release lever also is activated to pull the bolt assembly into the release position. Also, within the bolt is a spring loaded shackle release plunger, which forces the shackle into the open position.

The case of the padlock has a built-in baffle plate to prevent shimmying and, because of the construction of the bolt, the lock cannot be bounced open.

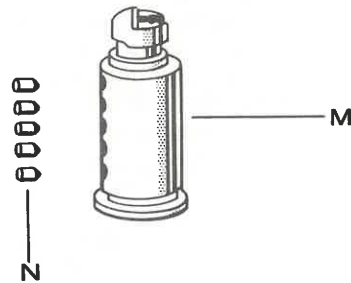
In order to disassemble the lock, a hollow mill should be used to grind off the edges of the two rivets holding the case together. Use the hollow mill with care so that the case is not damaged. As the outer case is lifted off, the levers will be exposed on the pivot post, as well as the bolt release lever. After servicing, replace the case cover and repeen the rivet heads to secure the case together.

**CORBIN No. 9904
PADLOCK**

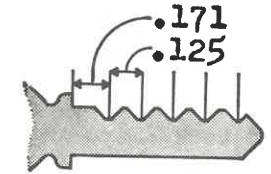
Manufactured by
Corbin Cabinet
Lock Division,
Emhart Corp.,
New Britain, Conn.



Back view of case.



- A - Shackle
- B - Shackle Spring
- C - Case
- D - Plug Retaining Pin
- E - Shackle Retaining Pin
- F - Retaining Pin Cap Screws
- G - Bolt Retainer Plug
- H - Bolt
- I - Bolt Spring
- J - Pin Chamber Top Caps
- K - Top Pin Springs
- L - Top Pins
- M - Plug
- N - Bottom Pins



0		5	.235
1	.285	6	.222
2	.272	7	.210
3	.260	8	.197
4	.247	9	.185

DISTANCE FROM
BOTTOM OF BLANK

This padlock is available from the factory in a semi-assembled condition so that the locksmith can key it individually or into an existing system. It is a pin tumbler lock, in which the plug rotates less than 180° for opening action. Because of this limited plug rotation, it is necessary to remove the top pins and the top caps for rekeying.

In the unused state, the top caps are merely press fitted into the chambers. However, if the padlock has been used, the top caps will have been finished flush with the case; in this event, the caps are removed by drilling.

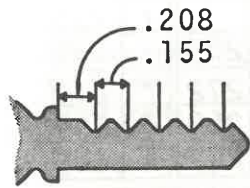
Two retainer pins are used in this padlock: one secures the plug and the other secures the shackle. Both of these pins are covered by cap screws, which are finished flush with the case. For a normal rekeying job, neither the plug nor the shackle need be removed so the retainer pins do not have to be disturbed.

For simple rekeying, the correct bottom pins, to suit the new key, are loaded into the pin chambers. Then, the top pins and springs are loaded (use at least two mushroom pins for security). New top caps then can be press fitted into the chambers and polished flush with the case.

In the event the plug must be removed, tap the back of the case several times with a mallet, which should loosen the retaining pin cap screw. Then, unscrew the cap screw and drop out the retaining pin. Use a new cap screw for reassembly and peen or file off the head. Polish the cap screw flush with the case.

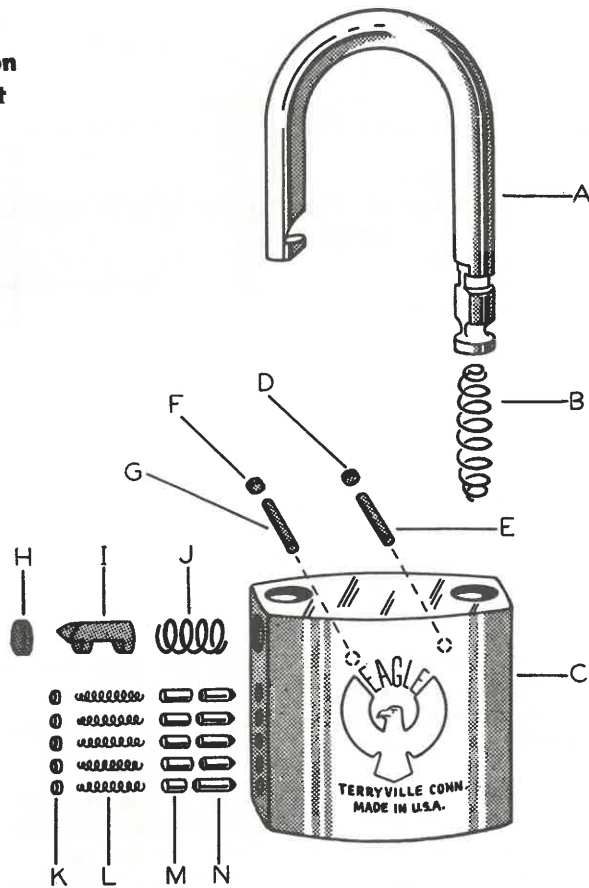
**EAGLE No. 04282PS
PADLOCK**

Manufactured by
Eagle Lock Corporation
Terryville, Connecticut



0		5	.248
1	.320	6	.230
2	.302	7	.212
3	.284	8	.194
4	.266	9	.176

DISTANCE FROM
BOTTOM OF BLANK



- A—Shackle
- B—Shackle Spring
- C—Case
- D—Shackle Retainer Pin Cap
- E—Shackle Retainer Pin
- F—Plug Retainer Pin Cap
- G—Plug Retainer Pin
- H—Shackle Bolt Cap
- I—Shackle Bolt
- J—Shackle Bolt Spring
- K—Pin Chamber Caps
- L—Springs
- M—Top Pins

- N—Bottom Pins
- O—Keyway Guard
- P—Plug

SERVICE NOTES

This padlock has an extruded case, pre-drilled for pin, plug, retainer and bolt holes. The plug is held in position by a single retainer pin, which rides in a groove in the back end of the plug.

There are five pin chambers located in the left side of the case (shackle toe side). All pin chambers are covered with caps that are press fitted into the chamber holes and finished flush with the case. The first chamber cap (from the face of the plug) is located 3/16" up from the bottom of the case while the center of the first chamber cap is located 7/32" in from either edge of the case along the shackle toe side.

The bolt cap also is press fitted into its hole and then finished flush with the case. Removal of the bolt cap when necessary can be done by inserting a punch into the shackle toe hole (with shackle open) and tapping the punch with a light hammer to force the cap out.

The plug retainer is a loose fitting brass pin that does not travel completely through the case. The pin is inserted into the back of the case and a cap covers the pin hole. Location of the plug retainer pin cap is 1" up from the bottom of the case (shackle toe side) and 5/8" in from the side of the case (pin chamber side).

The shackle retainer also is a loose fitting brass pin that does not travel completely through the case. Like the plug retainer, the shackle retainer pin is inserted into the back of the case and a cap covers the pin hole. Location of the shackle pin retainer is 1-1/16" up from the bottom of the case (shackle heel side) and 7/16" in from the side of the case.

It is not necessary to drill out all chamber caps or to remove the top pins for rekeying. To rekey, drill out the plug retainer cap and drop out the plug retainer. Pick the plug and turn it away from the shear line (either direction). Pull the plug out slightly (to free the cam tail-piece from the shackle bolt); then, turn the plug fully around so the bottom of the keyway rests under the top pins. Insert a "U" shaped wire hook into the bottom of the keyway to hold up the top pins. Remove the plug and rekey in the normal manner.

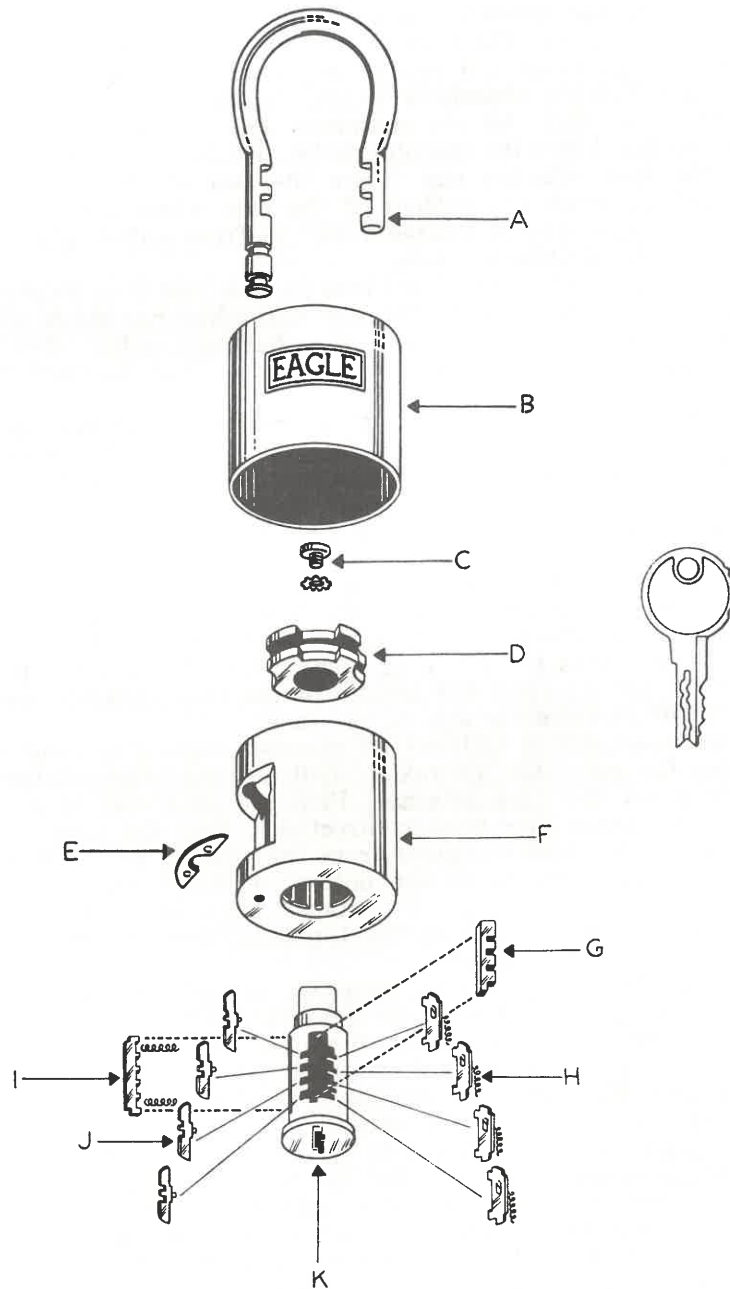
To replace the plug, reverse removal. In order to seat the cam with the bolt, the bolt must be depressed. Depress the bolt either by locking the shackle after the plug has been removed or by pushing the bolt down with a probe inserted through the shackle toe hole. With the bolt depressed, slightly twist the plug and the plug will seat. Before replacing the plug, set the half-moon keyway guard into its recess at the end of the plug.

If it is necessary to remove the top pins, drill out the pin chamber caps with a drill bit slightly smaller than the diameter of the caps. Dump the springs, top pins and bottom pins out of the case and plug. It may not be necessary to remove the plug from the case or to drill out the plug retainer pin cap. The new combination can be set to an old plug using a pre-cut key; then the newly arranged pin combinations can be loaded directly into each pin chamber and new caps installed.

SUPR-SECURITY PADLOCK

Manufactured by Eagle Lock Company
Terryville, Connecticut

- A — Shackle
- B — Case Cover
- C — Plug Retainer Screw
- D — Rotary Locking Bolt
- E — Shackle Retainer
- F — Case
- G — Pin Chamber Cap
- H — Wafer (Disc) Tumblers
- I — Side Bar and Springs
- J — Bell Type Tumblers
- K — Plug



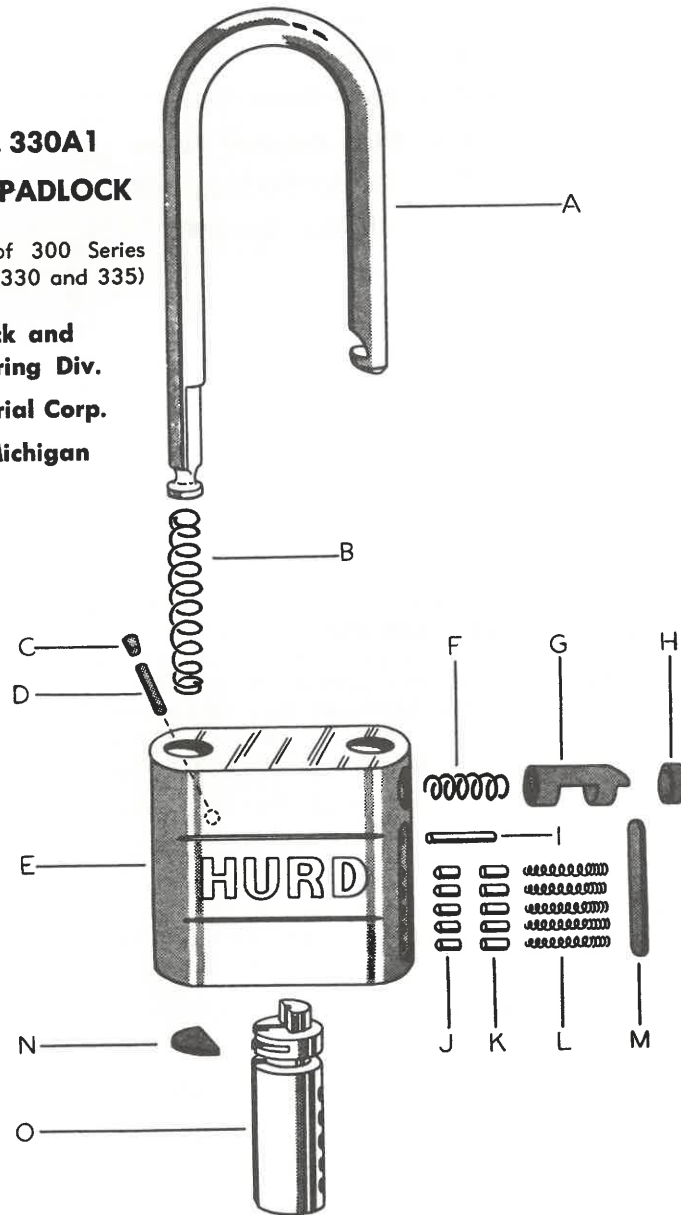
This plug employs a unique combination of three locking principles — wafer tumblers, Bell type tumblers and a sidebar. Both the wafer tumbler and the side bar are spring loaded, whereas the Bell tumblers are gravity drop. The key operates only the wafer and Bell type tumblers and when each of the tumblers is brought to its proper opening position, the spring loaded sidebar is depressed into the plug by the rotation of the plug.

Each Bell type tumbler has two notches cut opposite the depth pin, a deep notch on bottom and a shallow notch above the deep notch. When the Bell type tumblers are in opening alignment, the side bar will slide into the deep notches as it is depressed. However, if any of the Bell type tumblers is so aligned as to place the shallow notch in the path of the side bar, the side bar will be blocked from being fully depressed into the plug, thus preventing its rotation.

HURD NO. 330A1
"O" BITTED PADLOCK

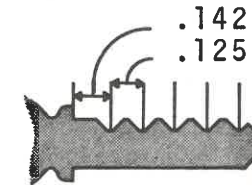
(Representative of 300 Series
 styles 315, 325, 330 and 335)

**Hurd Lock and
 Manufacturing Div.
 Avis Industrial Corp.
 Detroit, Michigan**



- A—Shackle
- B—Shackle Spring
- C—Shackle Retainer Cap
- D—Shackle Retainer
- E—Case (Extruded)
- F—Shackle Bolt Spring
- G—Shackle Bolt
- H—Shackle Bolt Cap

- I —Plug Retainer Pin
- J—Bottom Pins ("O" Bitted)
- K—Top Pins
- L—Springs
- M—Seal Plate
- N—Keyway Guard
- O—Plug



0	.230	5	.167
1	.217	6	.155
2	.205	7	.142
3	.192	8	.130
4	.180	9	.117

DISTANCE FROM
 BOTTOM OF BLANK

Pin chambers and plug retainer holds are on right side of case, within a slot. A seal plate which is press fitted into this slot covers the pin chambers and retainer hole. "O" bittings and loose cover plates are supplied to permit keying to existing systems or to duplicate Hurd Sequence Master Keyed padlocks. Keying can be done with Hurd "O" Bitted Pin kit #5, containing pins, springs, shackle, retainer pins and seal plates. Master wafers supplied in Hurd "O" Pin Kit #5M.

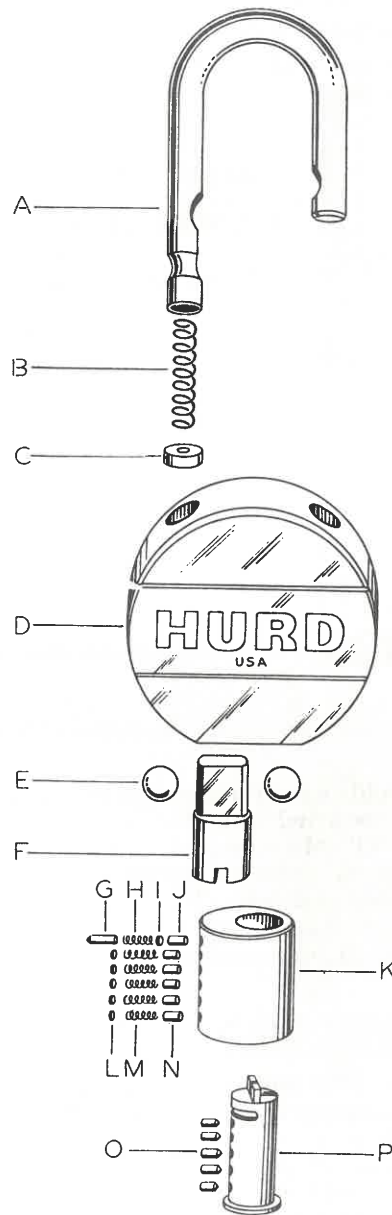
Shackle is held by a steel retainer pin which is covered by a brass cap, press fitted in to the case and finished flush.

To rekey when seal plate is tight, drill and pry out plate. Or, drill at angle through shackle to hole, shearing through plug retainer. Insert steel punch through hole and tap out seal plate. Do not drill into pin chambers. Center of plug retainer hole is 15/16" up from bottom of case, in line with pin chambers. Center of fifth chamber is 11/16" from bottom of case.

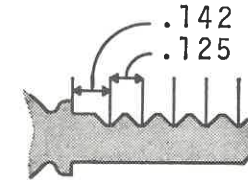
HURD "HEAVY-WEIGHT" PADLOCK (BALL-LOCKING)

No. 716A and 716C

Manufactured By
Hurd Lock & Mfg. Co.
Div. of Avis Industrial Corp.
Almont, Michigan



- A—Shackle
- B—Spring
- C—Spring Disc
- D—Case
- E—Locking Balls
- F—Plug Driver
- G—Cylinder Retainer Pin
- H—Cylinder Retainer Spring
- I—Plug Retainer Disc
- J—Plug Retainer Pin
- K—Cylinder Shell
- L—Discs
- M—Springs
- N—Drivers
- O—Plug Pins
- P—Cylinder Plug



0	.230	5	.167
1	.217	6	.155
2	.205	7	.142
3	.192	8	.130
4	.180	9	.117

DISTANCE FROM
BOTTOM OF BLANK

SERVICE NOTES

To disassemble this padlock, operate the cylinder with its key (or pick open) so that the shackle is removed from its locking hole. Look into the bottom of the shackle locking hole and locate a small pin hole. Insert a straightened out paper clip (with beveled edge) into this hole and force the cylinder retainer pin back. Pull on the key to slide the cylinder assembly out of the case.

If further disassembly is needed, tap the case on the work bench and the plug driver and the two locking balls will fall out through the cylinder hole. This will free the shackle so that the shackle, spring and disc can be disassembled.

If it is necessary to only fit a key to this padlock, do *not* remove the cylinder retainer pin as it is very difficult to reach the plug retainer pin under the disc in this hole. Remove the five discs over the cylinder pin holes and remove also the five springs, five drivers and five bottom pins. Fit the key in the same manner as you would when fitting the key *without* removing the plug

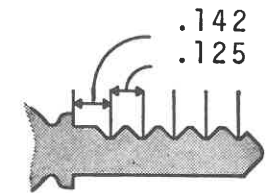
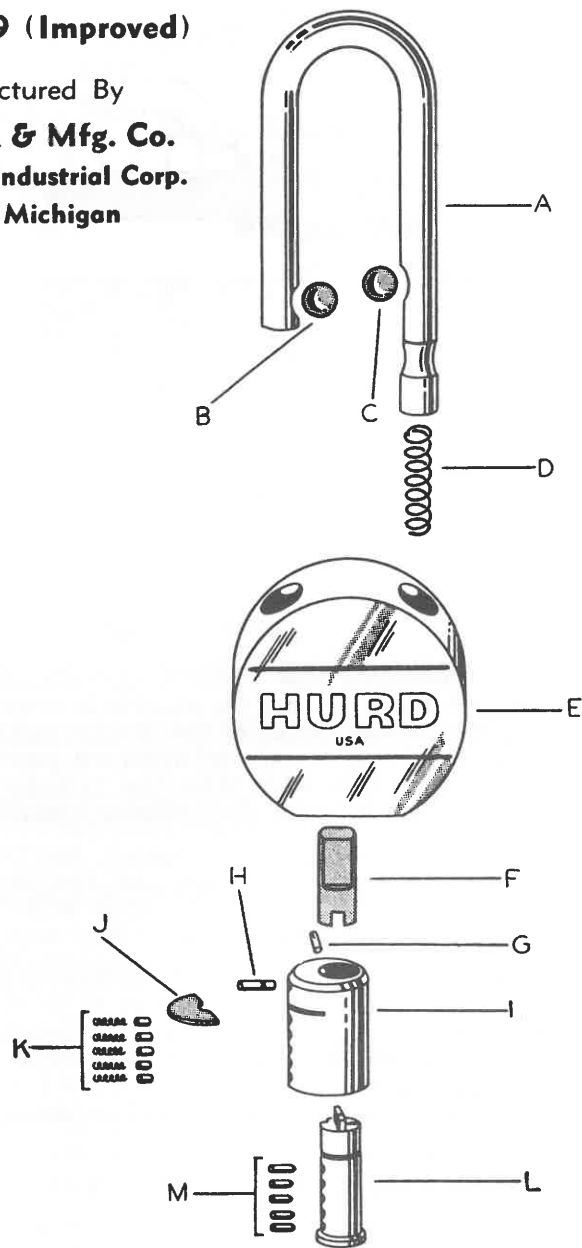
You cannot get at the plug retainer pin even though you remove the cylinder retainer pin so do not remove the plug to rekey.

NOTE! The two popular Ford key blanks will *not* fit this padlock. The back of the newer Ford key blank will have to be filed down to fit this plug.

HURD "HEAVY-WEIGHT" PADLOCK (BALL-LOCKING)

No. 716-C9 (Improved)

Manufactured By
Hurd Lock & Mfg. Co.
Div. of Avis Industrial Corp.
Detroit, Michigan

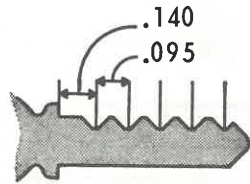


0	.230	5	.167
1	.217	6	.155
2	.205	7	.142
3	.192	8	.130
4	.180	9	.117

DISTANCE FROM
BOTTOM OF BLANK

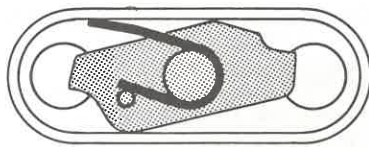
Removing the cylinder for rekeying has been simplified on this model. The cylinder is removed by rotating the plug 90° clockwise, inserting a probe into the toe shackle hole and depressing the plug retainer. With the cylinder out, the plug can be removed by prying up the plug retainer disc which is peened into a slot at the rear of the cylinder. A travel stop pin "G" has been added to limit rotation of the plug to 90°. Rekeying is done normally.

- A—Shackle
- B—Locking Ball
- C—Locking Ball
- D—Spring
- E—Case
- F—Plug Driver
- G—Travel Stop Pin
- H—Cylinder Retainer Pin
(Accessible through toe shackle hole)
- I—Cylinder
- J—Plug Retainer Disc
- K—Top Pins and Springs
- L—Plug
- M—Bottom Pins

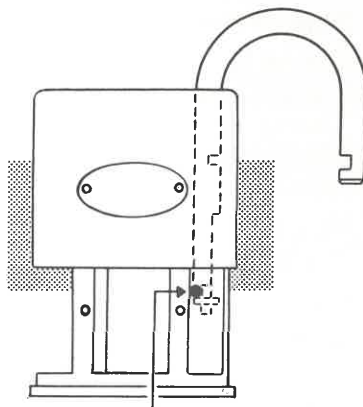


0		5	.190
1	.250	6	
2	.235	7	
3	.220	8	
4	.205	9	

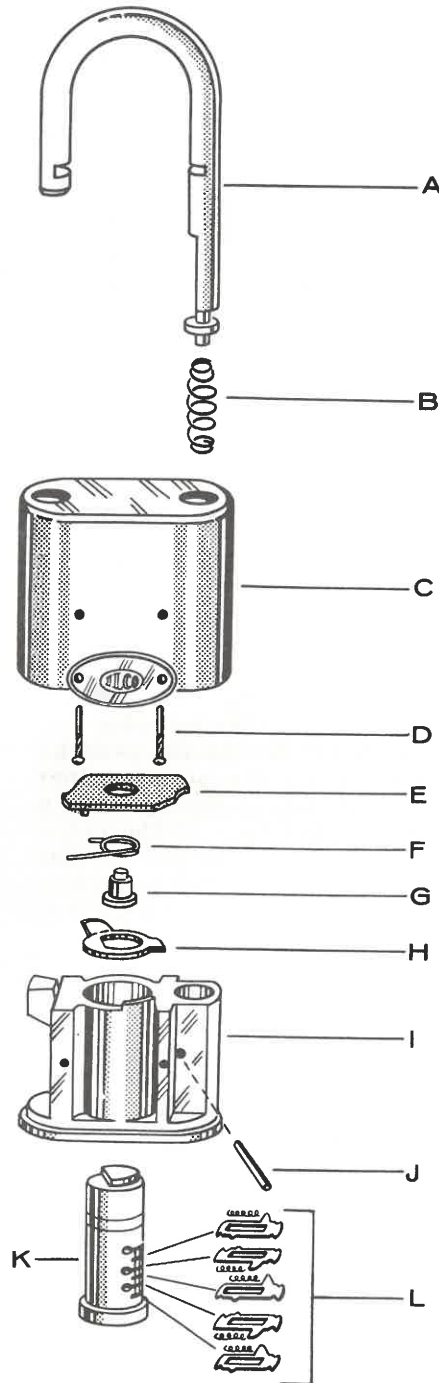
DISTANCE FROM
BOTTOM OF BLANK



Inside view of top of case.



Shackle retainer pin.



**ILCO No. 315
PADLOCK**

**Manufactured by
Independent Lock
Company,
Fitchburg, Mass.**

- A - Shackle
- B - Shackle Spring
- C - Outer Case
- D - Retaining Pins
- E - Shackle Bolt
- F - Shackle Bolt Spring
- G - Shackle Bolt Anchor
- H - Cam
- I - Inner Housing
- J - Shackle Retaining Pin
- K - Plug
- L - Disc Tumblers

The Ilco No. 315 padlock is a die cast, disc tumbler unit that can be disassembled for rekeying. It has two major components: an inner housing that fits into an outer case. Two retaining pins, which also secure the name plate to the case, hold the inner housing within the case. These pins can be removed by gripping with a pair of Bernard pliers and twisting to the left, with the shackle open and turned 180° from locked position.

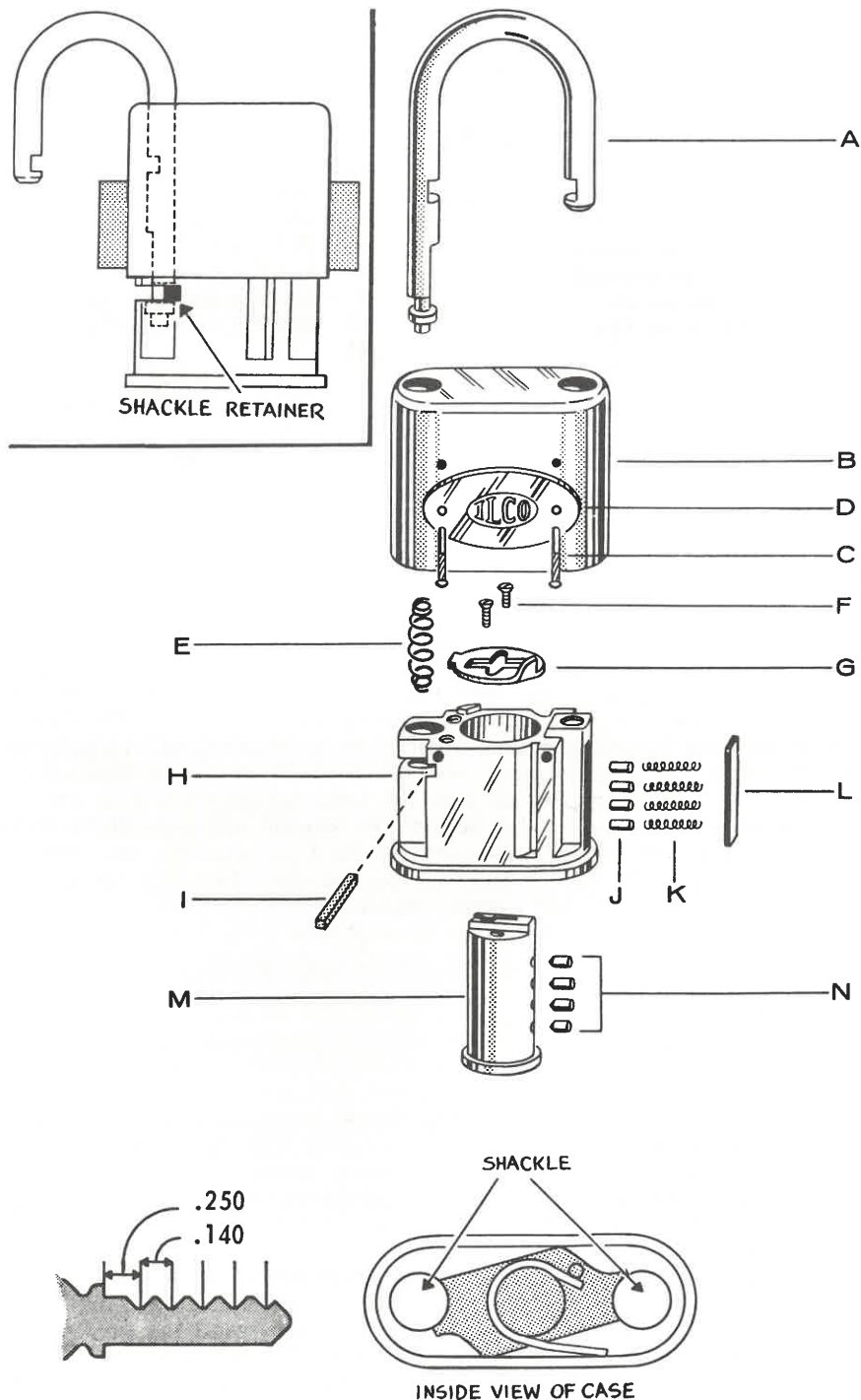
When the retaining pins are out, the inner housing will slide out of the bottom of the case. As this occurs, the shackle will slide down with the housing. Before the inner housing can be fully removed, the shackle retainer pin (See Figure 2) must be pushed out. This will release the shackle from the housing and permit removal.

It is important that the shackle be kept in a turned position to prevent the shackle bolt from locking into the notches of the shackle (See Figure 2).

The housing contains the shackle spring and the plug. To remove the plug for rekeying, note the cam which is positioned on top of the housing. The cam is peened on the end of the plug and must be removed. Careful prying of the cam will ease the cam off the end of the plug.

After servicing the lock, the plug should be replaced in the housing and the cam installed by peening it on the plug. The shackle spring then is inserted into the housing and the housing eased into the case. (Keep the shackle turned 180° .) When the shackle is setting in the housing, the shackle retainer pin can be replaced and the housing pushed fully into the case.

Before replacing the retainer pins to secure the housing into the case, hold the unit together and check the locking and unlocking action with the key. Then, set the name plate on the case and insert the two retaining pins through the name plate and into the case. Drive these pins in with a light mallet. If needed, polish or buff the case to remove tool marks and to restore the original finish.



**ILCO No. 317
PADLOCK**

Manufactured by
Independent Lock
Company,
Fitchburg, Mass.

0	.308	5	.218
1	.290	6	.200
2	.272	7	.182
3	.254	8	.164
4	.236	9	.146

DISTANCE FROM
BOTTOM OF BLANK

- A - Shackle
- B - Outer Case
- C - Retaining pins
- D - Name plate
- E - Shackle spring
- F - Cam screws
- G - Cam
- H - Inner housing
- I - Shackle Retainer
- J - Top pins
- K - Top Pin Springs
- L - Slide (driver spring retainer)
- M - Plug (core)
- N - Bottom pins

The Ilco No. 317 padlock is a die cast, pin tumbler unit that can be disassembled for rekeying. It has two major components: an inner housing that fits into an outer case. Two retaining pins, which also secure the name plate to the case, hold the inner housing within the case. These pins can be removed by gripping with a pair of Bernard pliers and twisting to the left, with the shackle open and turned 180° from locked position.

At the time the retaining pins are removed, the housing can be eased out of the bottom of the case. It should be noted that the shackle will slide down, as the housing slides down. When the housing is half way out, the shackle retainer will be visible and can be removed (See Figure 1)

It is important that the shackle be kept in a turned position to prevent the shackle bolt from locking into the notches of the shackle (See Figure 2).

With the inner housing out, the cam will be visible at the top of the housing. The cam, held by two small screws, must be removed to take out the plug. When the cam is off, a follower can be used to push the plug from its housing (set pins at shear line).

To reassemble the lock after servicing, set the plug in line with the follower and push the plug into the housing. Replace the cam and its screws on the back end of the plug. Insert the shackle spring and push the housing into the bottom of the case. Then, set the heel of the shackle in position, being sure that the bottom of the shackle rests in the opening of the shackle spring.

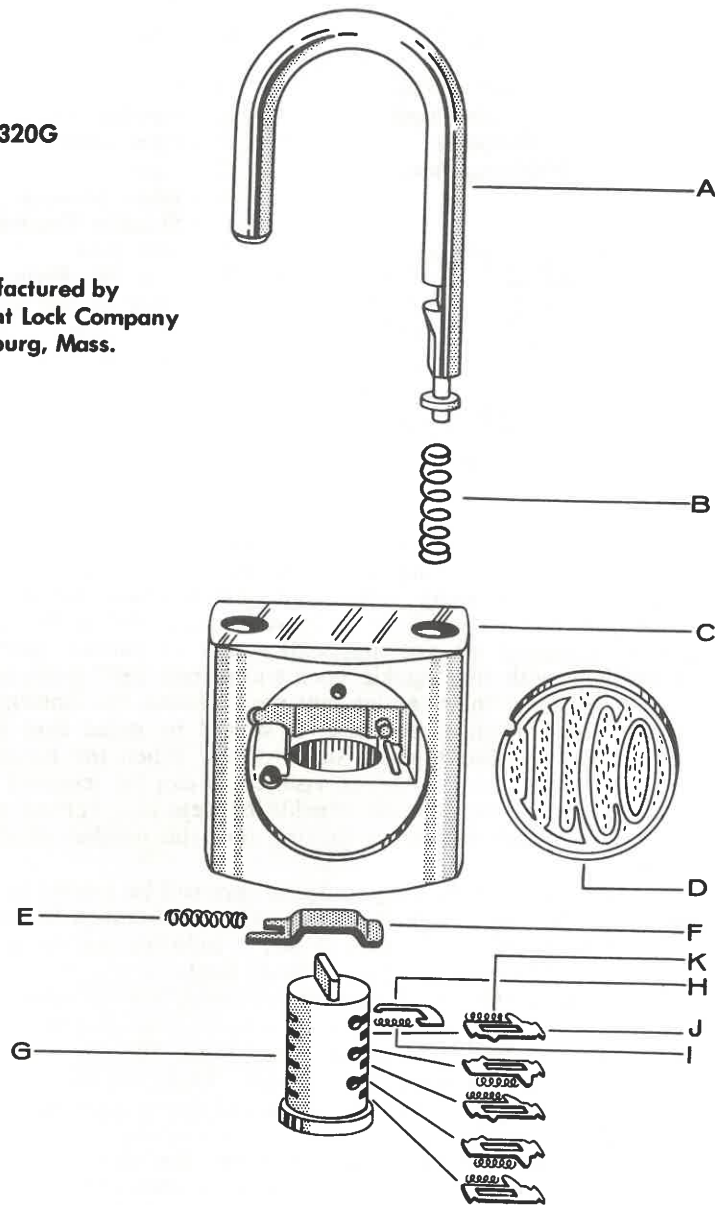
When the housing is half way into the case, insert the shackle retainer to secure the shackle (keep shackle turned 180°). Push the housing fully into the case and hold in this position while checking the locking and unlocking action with the key.

To secure the housing into the case, set the name plate on the case and insert the two retaining pins through the name plate and into the case. Drive these pins in with a light mallet. If needed, polish or buff the case to remove tool marks and to restore the original finish.

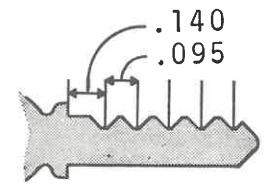
ILCO No. 320G

PADLOCK

Manufactured by
Independent Lock Company
Fitchburg, Mass.



- A - Shackle
- B - Shackle Spring
- C - Case
- D - Name Plate
- E - Bolt Spring
- F - Bolt
- G - Plug (core)
- H - Plug Retainer
- I - Plug Retainer Spring
- J - Disc Tumblers
- K - Disc Tumbler Springs



0		5	.190
1	.250	6	
2	.235	7	
3	.220	8	
4	.205	9	

DISTANCE FROM
BOTTOM OF BLANK

The Ilco No. 320G disc tumbler padlock has a cast iron case and can be disassembled for rekeying. To disassemble the lock, the Ilco name plate, which is press fitted into the case, must be removed. A small 1/8" hole, drilled between the plate and the case, will permit the plate to be pried up. The hole should be located at the top of the I in Ilco, near the edge of the plate, and the hole should be angled toward the middle of the case. A hook tool or ice pick can be used to pry up the plate.

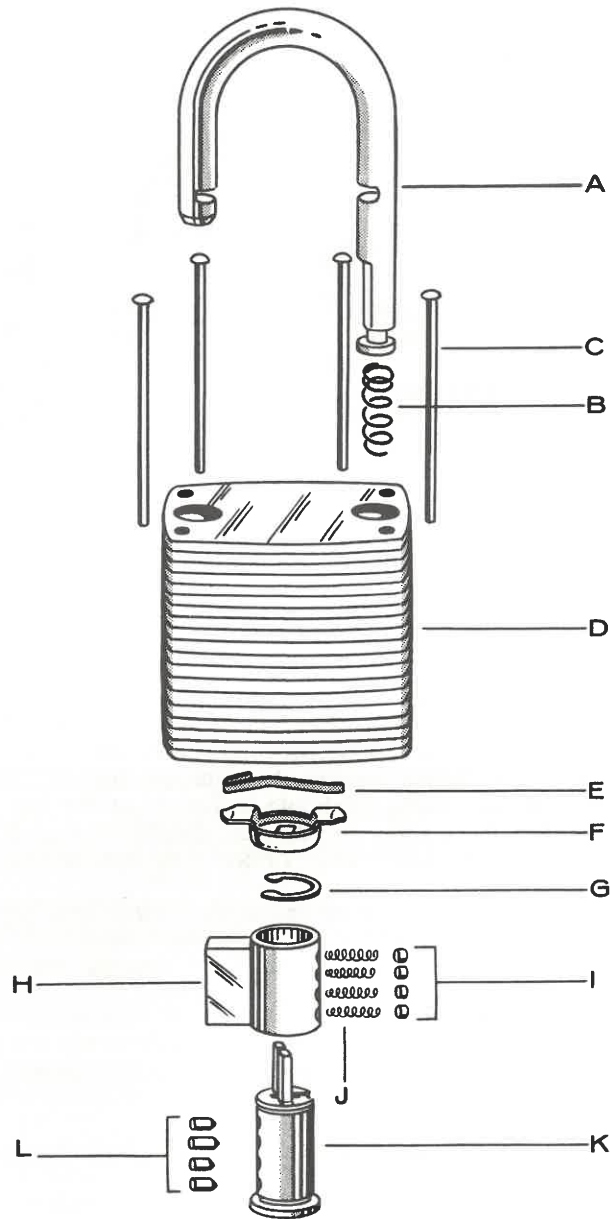
With the name plate removed, the bolt and bolt spring will be visible in the center of the case. Both the bolt and spring can be removed. Also, the shackle will come out since the shackle retainer is part of the name plate removed earlier.

Also visible in the center of the case is the back end of the plug and the plug retainer, which rests in the sixth tumbler slot of the plug. Depressing the retainer will permit the plug to be removed for rekeying.

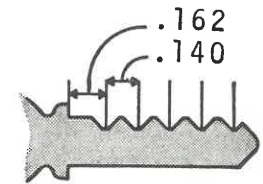
To reassemble the padlock, insert the plug into the case, while depressing the plug retainer. The retainer will snap into place when the plug is in. Then, insert the shackle spring and shackle. While holding these in place, insert the bolt and bolt spring. Lay the name plate in position (lugs on underside will fit into holes in case) and check the locking and unlocking action with the key. When correct, tap the name plate into final position. The hole in the name plate can be patched by tapping for an 8-32 machine. The head of the screw should be ground flush and the case repainted.

**ILCO No. 343
PADLOCK**

Manufactured by
Independent Lock
Company,
Fitchburg, Mass.



- A - Shackle
- B - Shackle Spring
- C - Case Rivets
- D - Laminated Case
- E - Bolt Spring
- F - Bolt
- G - Plug Snap Ring Retainer
- H - Plug Housing
- I - Top Pins
- J - Top Pin Springs
- K - Plug
- L - Bottom Pins



0		5	.198
1	.270	6	.180
2	.252	7	.162
3	.234	8	
4	.216	9	

DISTANCE FROM
BOTTOM OF BLANK

The No. 343 laminated padlock by Ilco is a pin tumbler unit that can be serviced by the locksmith, when such service can be justified. The plates of the laminations are held together by four long rivets, which are press fitted through the case. This makes it impractical to disassemble the lock completely.

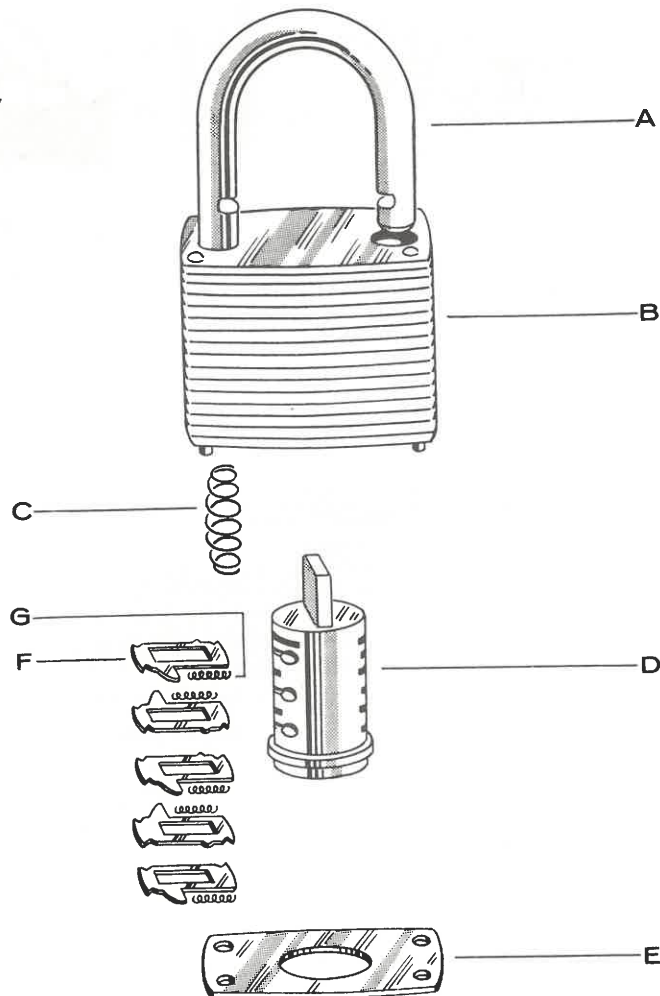
However, the bottom case plate can be removed. To do this, use a hollow mill to shear off the rivet heads. A hollow mill will leave sufficient metal for re-peening of the bolts. Once the heads are cleared, the bottom plate can be removed to expose the cylinder, which can be lifted out of the case.

A snap ring retainer holds the plug into the cylinder housing. This retainer merely unsnaps out of the plug, so that the plug can be removed and rekeyed in the normal manner.

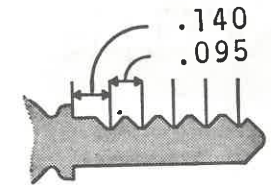
When replacing the cylinder in the case, be sure that the cam, which is an integral part of the plug, fits properly into the slot of the bolt. Check the locking action before replacing the bottom case plate. When correct, peen the heads of the rivets and buff away any tool marks.

**ILCO No. 344
PADLOCK**

**Manufactured by
Independent
Lock Company,
Fitchburg, Mass.**



- A - Shackle
- B - Laminated Case
- C - Shackle Spring
- D - Plug
- E - Bottom Case Plate
- F - Disc Tumblers
- G - Disc Tumbler Springs



0		5	.190
1	250	6	
2	235	7	
3	220	8	
4	205	9	

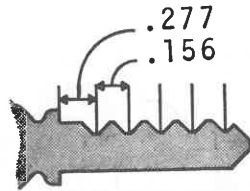
DISTANCE FROM
BOTTOM OF BLANK

The No. 344 laminated padlock by Ilco is a disc tumbler unit that can be serviced by the locksmith, when such service can be justified. The plates of the laminations are held together by four long rivets, which are press fitted through the case. This makes it impractical to disassemble the lock completely.

However, the bottom case plate can be removed. To do this, use a hollow mill to shear off the rivet heads. A hollow mill will leave sufficient metal for re-peening of the bolts. Once the heads are cleared, the bottom plate can be removed to expose the cylinder, which can be lifted out of the case. Servicing the cylinder is done in the usual manner, although it should be noted only five tumblers are used in the die cast plug which has six slots.

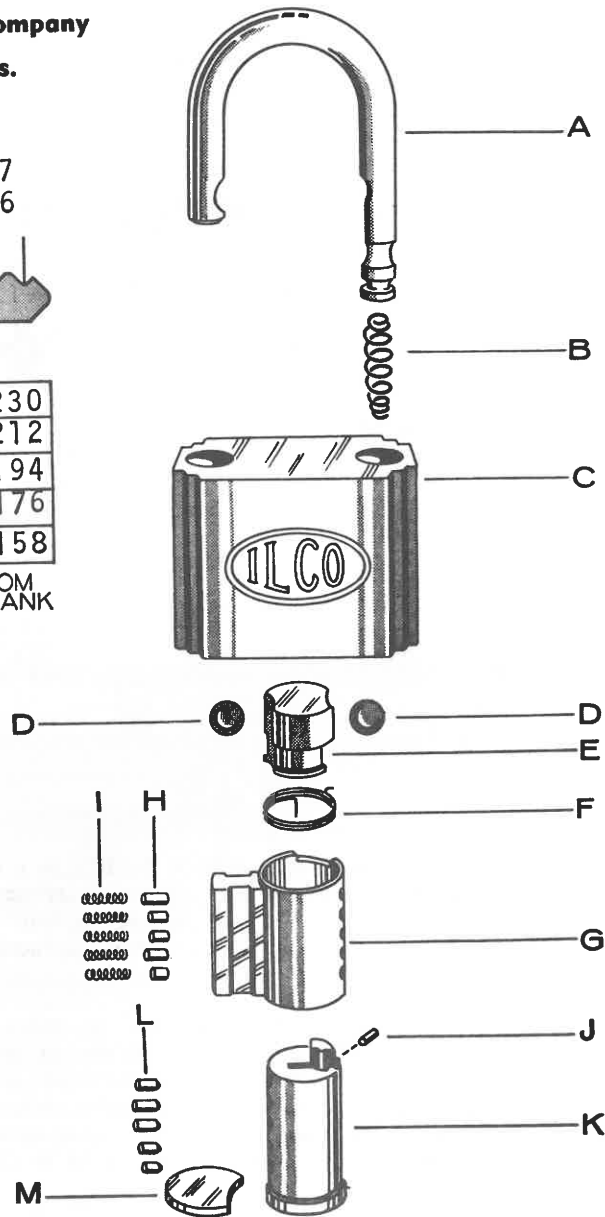
When reassembling the lock, make sure that the cam, which is an integral part of the plug, fits properly into the slot of the bolt. Check the locking action before replacing the bottom case plate. When correct, peen the heads of the rivets and buff away any tool marks.

No. 384 Padlock
 Manufactured by
 Independent Lock Company
 Fitchburg, Mass.



0	.320	5	.230
1	.302	6	.212
2	.284	7	.194
3	.266	8	.176
4	.248	9	.158

DISTANCE FROM
 BOTTOM OF BLANK

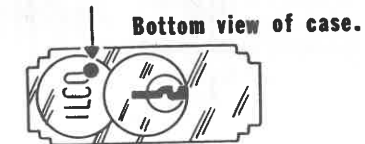


A—Shackle
 B—Shackle spring
 C—Case
 D—Locking balls
 E—Cam
 F—Cam spring
 G—Cylinder body

H—Driver pins
 I—Driver springs
 J—Plug retaining pin
 K—Plug (core)
 L—Bottom pins
 M—Cylinder retainer

SERVICE NOTES

The case of this padlock is machined from solid brass stock. The cylinder assembly is held in place by a brass retainer, which is visible at the base of the lock. This can be removed by drilling and tapping a hole, for an 8-32 machine screw, $\frac{3}{8}$ " down and $\frac{1}{8}$ " in from the edges of the retainer. (See arrow in illustration). A standard machine screw is threaded into this hole and the head of this screw is clamped in a vise. Then, the base of the padlock is tapped with a mallet or soft hammer and the retainer will pull out. This exposes the entire cylinder assembly which can be lifted out.



The plug (core) is held in the cylinder by a small retaining pin. When this pin is removed, the plug can be pushed out with a standard follower tool. Rekeying is done in the usual manner, to a new combination.

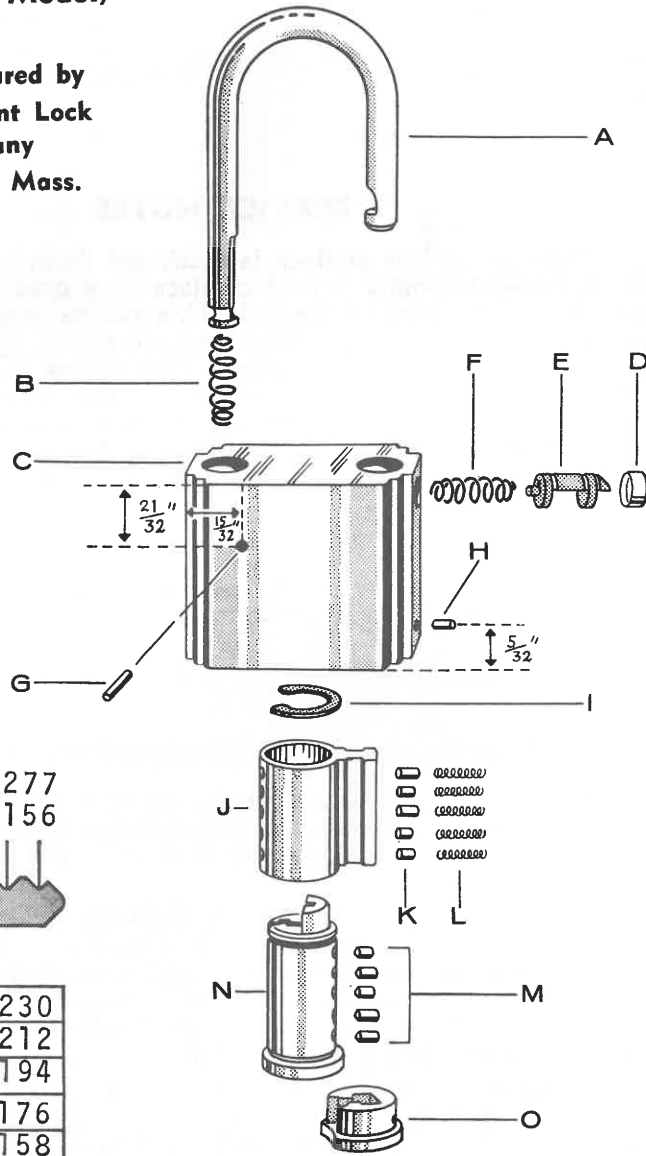
The cam of the lock is held in the body by a cam spring. By reaching inside the lock body with a pair of needle nose pliers, the cam and cam spring can be pulled out. Underneath the cam and activated by it are two $\frac{1}{4}$ " steel locking balls, which lock the shackle heel and toe. When the two steel balls drop out, the shackle and the shackle spring will pull out.

To replace the parts, insert the shackle spring and the shackle. Next, drop in both steel balls. Carefully align the cam with its indentations in line with the balls, and push the cam into place. Make sure the cam spring is caught at the rounded hook end within the lock body. Insert the cylinder assembly, hold in place with thumb and check the lock for operation.

To patch the hole in the brass retainer, insert an 8-32, brass, machine screw, peen the ends, dress with a file and buff. Insert retainer and tap in place

**No. 384 Padlock
(Improved Model)**

Manufactured by
Independent Lock
Company
Fitchburg, Mass.



0.	.320	5.	.230
1.	.302	6.	.212
2.	.284	7.	.194
3.	.266	8.	.176
4.	.248	9.	.158

DISTANCE FROM
BOTTOM OF BLANK

- A—Shackle
- B—Shackle spring
- C—Case
- D—Shackle bolt cap
- E—Shackle bolt
- F—Shackle bolt spring
- G—Shackle retaining pin
- H—Cylinder retaining pin
- I—Truarc plug retaining ring
- J—Cylinder body
- K—Top pins
- L—Springs
- M—Bottom pins
- N—Plug
- O—Cylinder retainer plug

SERVICE NOTES

The revised version of the Ilco No. 384 padlock is machined from solid extruded brass stock. The cylinder assembly is held in place by a brass retainer, which is visible at the base of the lock. This cylinder retainer is anchored by a small pin driven into it from the edge of the case. To remove this pin, drill a small hole $5/32$ " up from the bottom of the case indicated at dimension "H" in the illustration. When the retainer is removed, the cylinder assembly can be taken out.

Cylinder servicing can be accomplished by sliding off the horseshoe shaped spring clip and pushing the plug out with a standard follower tool. Rekey or master-key in the usual manner.

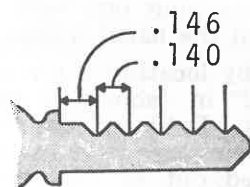
The shackle of the lock can be removed by locating a pin on the back of the lock $21/32$ " down and $15/32$ " in (shown in the exploded view for the shackle retainer "G"). Drill out the pin with a No. 38 drill bit. The bolt and bolt spring are held in the case by a brass plug which can be knocked out by inserting a drive pin punch in the locking hole in the top of the case. With the plug removed, the bolt and bolt spring can be removed.

To replace the parts, insert the bolt spring, then the bolt. Hold these in place and re-insert the brass plug. Next, insert the shackle spring, then the shackle. By pushing the bolt, the toe of the shackle will be locked in place. Drive in a new brass shackle retaining pin. Insert the recombined cylinder assembly from the bottom of the case. Hold in place with the thumb and check with the key, the opening and closing of the lock. If satisfactory, insert brass cylinder retainer and anchor permanently with a new pin, driven in from the side of the case.

The original finish of the lock can be restored by filing and sanding the two pins and the two plugs flush. Wire brush or belt sand the entire external surface to hide all holes.

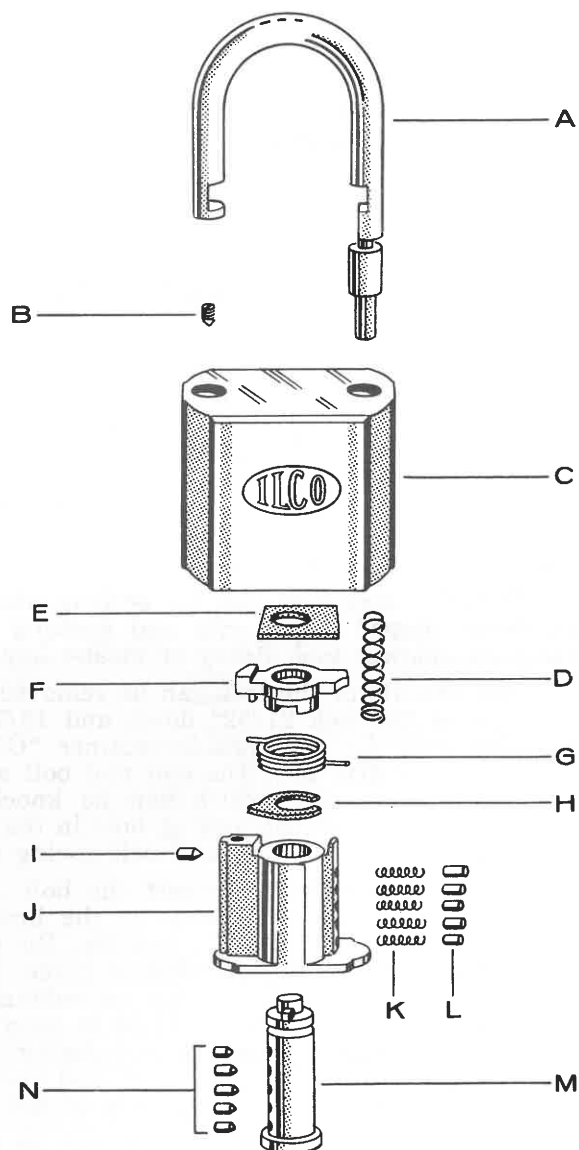
**ILCO No. 390
PADLOCK**

Manufactured by
Independent Lock
Company,
Fitchburg, Mass.



0		5	.198
1	.270	6	.180
2	.252	7	.162
3	.234	8	
4	.216	9	

DISTANCE FROM
BOTTOM OF BLANK



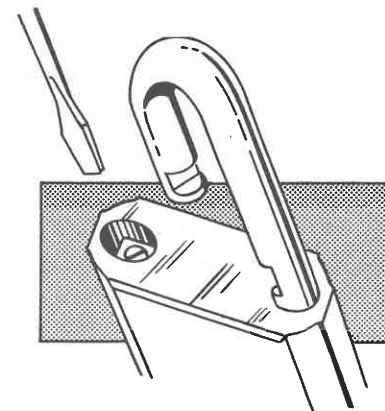
- A - Shackle
- B - Cylinder Housing Retaining
Screws
- C - Case
- D - Shackle Spring
- E - Spacer Plate
- F - Cam
- G - Cam Spring
- H - Plug Retaining Clip
- I - Cylinder Housing Retaining Pin
- J - Cylinder Housing
- K - Top Pin Springs
- L - Top Pins
- M - Plug
- N - Bottom Pins

The case of the Ilco No. 390 padlock has two parts: an outer case and an inner cylinder housing. The cylinder housing fits into the bottom of the case and is held secure by a single screw. The cylinder housing screw is accessible through the open shackle hole (See Figure 1); thus, this padlock can be disassembled for cylinder rekeying. Note that both the outer case and the cylinder housing are die cast parts.

With the shackle open, the cylinder housing screw can be removed. Then, a rod can be inserted into the shackle hole and gentle tapping on this rod will force the cylinder housing out of the outer case.

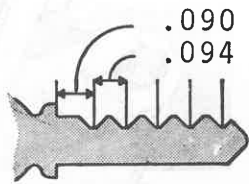
The cylinder housing is a one piece unit containing the plug, pins, springs and the plug retaining clip. To separate the plug, unsnap the plug retaining clip and push the plug out with a follower. If new top pins are needed, these should be inserted into the cylinder from the bottom of the keyway. Because of this, it is necessary to insert the driver springs before the drivers are inserted. After reassembly, check the action of the cylinder with the correct key.

When replacing the cylinder housing, note that the cam locks the shackle heel and toe. The cam fits on a boss inside the case and it is separated from the case by a spacer plate. Also, it is important that the retaining pin I is properly positioned. I is the unit that is forced against the cylinder housing by the retaining screw B. Thus, retaining pin I is the part that actually holds the cylinder housing into the outer case.



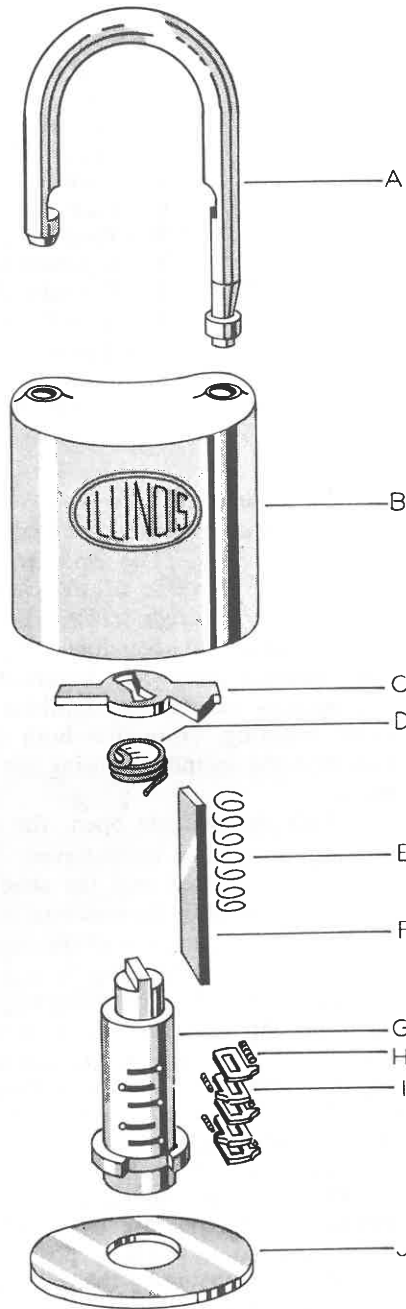
**ILLINOIS
3500 SERIES
PADLOCK**

Manufactured by
Illinois Lock
Company,
Wheeling, Illinois



0		5	.175
1	.255	6	
2	.235	7	
3	.215	8	
4	.195	9	

DISTANCE FROM
BOTTOM OF BLANK



- A - Shackle
- B - Case
- C - Bolt
- D - Bolt Spring
- E - Shackle Spring
- F - Separator Plate
- G - Plug
- H - Disc Tumbler Springs
- I - Disc Tumblers
- J - Bottom Plate

The case of this disc tumbler padlock is a die cast unit having an opening on the bottom. In order to form a closed lock body, the opening at the bottom is covered by a plate that is peened over by the edges of the case. Thus, to disassemble this padlock for rekeying, the peened edges must be pryed up so the bottom plate can be dropped out.

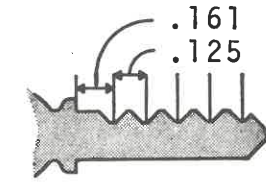
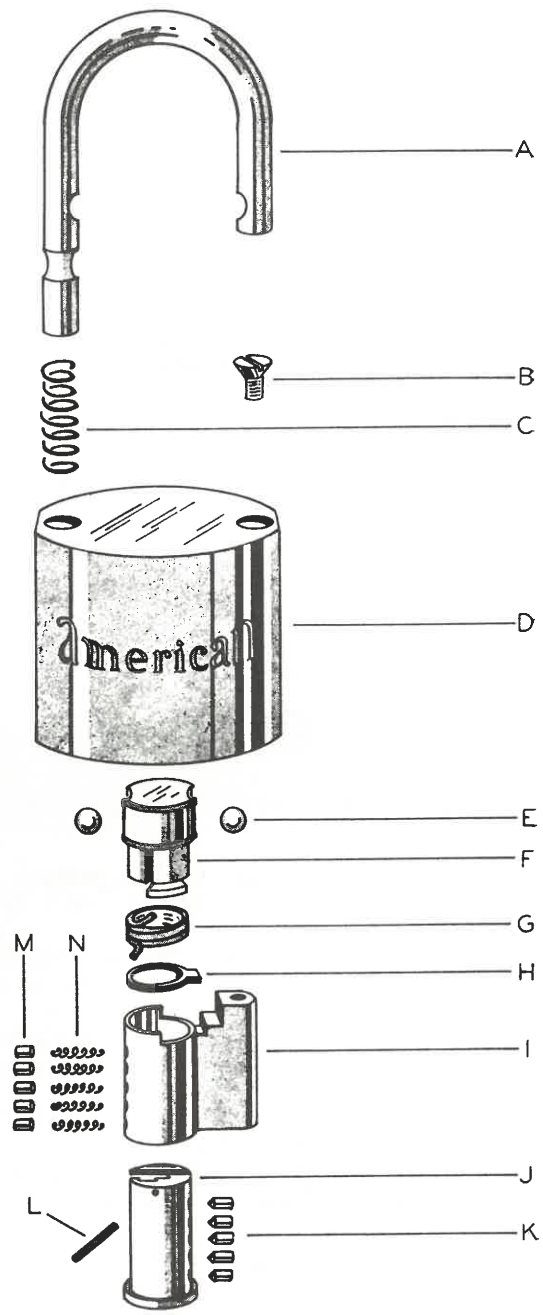
When the bottom plate is off, the cylinder can be lifted away for servicing. Being a disc tumbler cylinder, rekeying is done in the normal manner.

When just the cylinder is removed, the bolt and bolt spring will remain in the case. This results because of the dual function of the bolt; the bolt not only locks the shackle heel and toe but also serves as the shackle retainer. Turning the bolt (by action of the key) frees the heel of the shackle for opening. But this action also presents an additional lug to the shackle and this lug serves to retain the open shackle in the case.

During reassembly, insert the plug so that the tailpiece enters the slot of the bolt. Check the locking action before re-peening the edges of the case over the bottom plate.

**AMERICAN
No. 100
SERIES**

Manufactured
by
**Junkunc Bros.
American Lock
Company,
Crete, Illinois**



0		5	249
1	309	6	234
2	294	7	219
3	279	8	204
4	264	9	189

DISTANCE FROM
BOTTOM OF BLANK

- A—Shackle
- B—Cylinder Retaining Screw
- C—Shackle Spring
- D—Case
- E—Locking Balls
- F—Bolt
- G—Bolt Spring
- H—Aligning Washer
- I—Cylinder Body
- J—Plug
- K—Bottom Pins
- L—Plug Retainer Pin
- M—Top Pins
- N—Driver Springs

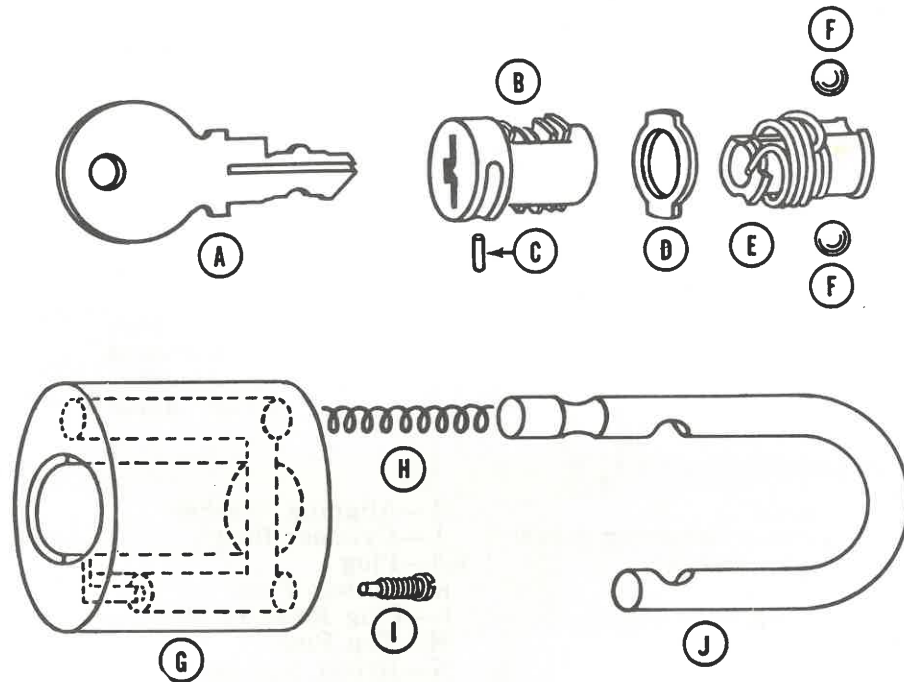
SERVICE NOTES

This padlock is essentially a removable core lock in which the cylinder can be interchanged with other comparable cylinders. A flat head screw holds the cylinder into the case, which is hardened steel. To remove the cylinder, the shackle must be open. The screw is visible in the shackle hole, through which it can be unscrewed to free the cylinder.

The cylinder is a standard five pin tumbler unit and the plug is held within the cylinder housing by a retainer pin visible at the rear. Servicing of the cylinder and plug is done in the normal manner. Before replacing the cylinder, note that its tailpiece activates the lock bolt, which in turn positions two steel balls to lock the shackle heel and toe. If necessary, the bolt can be removed after first removing the bolt spring.

AMERICAN "BALL-LOCKING" PADLOCK

Manufactured by
Junkunc Bros. American Lock Co., Chicago Illinois



- | | |
|--|---|
| A—Key (double-bitted) | F—Hardened Steel Locking Balls |
| B—Cylinder (ten brass blade tumblers, contained by "V" spring) | G—Case (either solid brass, hardened steel or die cast, depending on model of lock) |
| C—Cylinder Retaining Pin | H—Shackle Spring |
| D—Retainer Washer | I—Retainer Spring |
| E—Retainer Assembly with Coiled Spring | J—Shackle |

Since all models of the Junkunc Bros. American padlocks have the same basic construction, the service procedures required for them also are the same. The patented "ball-locking" device to secure the shackle is used on all models of the American padlocks. In essence, this device consists of a cam or retainer which turns the plug to place two hardened steel balls into the shackle, locking it at heel and toe. This method of locking the shackle is exceptionally resistant to surreptitious entry by forcing the lock. In fact, tests have proved that as force is applied to the shackle, the locking balls wedge tighter into the shackle.

All American padlocks use the same style cylinder, which has ten brass blade tumblers. The only exception to this occurs on the models termed as "deadlocking"; These models are designed so that a key is required to lock the shackle in place, instead of using the regular spring locking design. Of course, the American combination padlocks are an exception also, because of their completely different design and function.

COMPONENT PARTS

An American padlock comprises three basic parts: cylinder assembly; locking mechanism assembly; and the shackle assembly. In order to clarify the service on each, the parts will be considered separately.

CYLINDER ASSEMBLY

For ease in changing combinations, the cylinders on the American padlocks are designed for quick removal, a definite advantage since this is the most frequent job performed on the lock. The cylinder is held in the lock by a retaining pin, which in turn, is anchored in position by a retainer screw. To disengage the retainer pin, therefore, it is necessary to remove the retainer screw through the shackle hole.

This can be accomplished by the following procedure: Open the lock to expose the retainer screw "I", which is located in the base of the shackle hole. Using a small screwdriver, remove this screw. On old locks, this screw may be frozen tight; in these cases, use penetrating oil or a similar compound to free it.

Before proceeding further, refer to the lock case "G" in the Exploded View. At the base of the shackle hole from which the retainer screw "I" was removed, there is a small hole drilled at a right angle. This is the hole which contains the cylinder retaining pin "C". The pin is held in its engaged position, that is—engaged with the cylinder to hold the cylinder in the case—by the end of the retainer screw, which blocks the passage of

the pin. When the retainer screw is out, however, the pin "C" is free to move within the hole to disengage from the cylinder.

The retainer pin will not move freely out of engagement with the cylinder; it must be moved by jarring it down. This is accomplished by placing the padlock on a flat surface and by hitting the case with a leather mallet. The resulting vibration will force the pin into the space vacated by the retainer screw.

Prior to tapping, the key should be inserted into the cylinder and turned to a 30° angle. You will understand the reason for this by referring to the cylinder "B" in the Exploded View. Note that the retainer pin "C" rides in a slot in the cylinder cap. Turning the cylinder will align the slot with the pin so that the pin can be moved easily. After the case has been tapped, the cylinder should pull out easily with the key. Disassembly of the cylinder for combination changing can be performed in the normal manner. It should be noted that the cylinder cap on some models are plated silver, but otherwise they are exactly the same as the brass caps on other models.

LOCKING MECHANISM

The locking mechanism, which includes the steel locking balls, is provided with a tensioned spring for automatic return of the mechanism. The heart of this mechanism is the brass retainer assembly "E" which contains the spring and the seat for the locking balls when in their "unlocked" position.

During service work, it should be remembered that the retainer assembly "E" varies in size according to the lock model. It is important that the correct retainer be used for the correct model. For example, the A30 and the AC20 series use a retainer assembly that has an extra milled surface distinguishable by the groove in the body. On the other hand, the L50, K60 and KC40 series use retainer assemblies that are plain, while the H10 series use a much longer retainer. Regardless of the construction, however, the operation is basically the same.

The assembled retainer consists of three parts: a brass washer "D"; the retainer body "E" and the coil spring. The washer "D" is positioned on the retainer body as shown in the drawing; this will permit the retainer to be installed into the case with the proper tension placed upon the spring. Upon examining the washer "D", you will note that one of its corners has a small hook. This hook is made for anchoring the protruding end of the coiled spring wound around the retainer body. Note that the other end of the spring is anchored in a hole provided in the retainer body.

When called upon to replace or service the retainer assembly, it is necessary to first remove the cylinder. Next, the retainer assembly can be removed by grasping it with small needle nose pliers and by twisting 45° and pulling out. The steel locking

balls "F" then can be removed easily from their nest. After servicing, reassemble the retainer by placing the washer "D" on the retainer body in the position shown in the Exploded View. Be sure that the hook in the washer is correctly aligned with the coiled spring and that the spring is anchored securely.

Prior to replacing the retainer assembly, replace the steel balls into their nest and spread them to allow for replacement of the retainer. It may be advisable to grease the balls lightly so that they will remain in position while replacing the retainer. Next, hold the padlock in your left hand and exert pressure on the shackle. The pressure need not be full—only enough to keep the locking balls properly seated in the shackle notchings.

Grasp the retainer with pliers, while checking to see that the washer "D" is correctly aligned with the spring. It is important that the protruding tip of the coiled spring be positioned opposite the retaining pin hole in the case. Place the retainer assembly about half-way into the case, with the washer riding in the grooves in the case. Note that the protruding end of the coiled spring should also ride in the groove.

At this point, the retainer assembly should be twisted about 90° to the right. This will produce tension on the spring and will permit the seating of the retainer into the bottom of the case.

SHACKLE ASSEMBLY

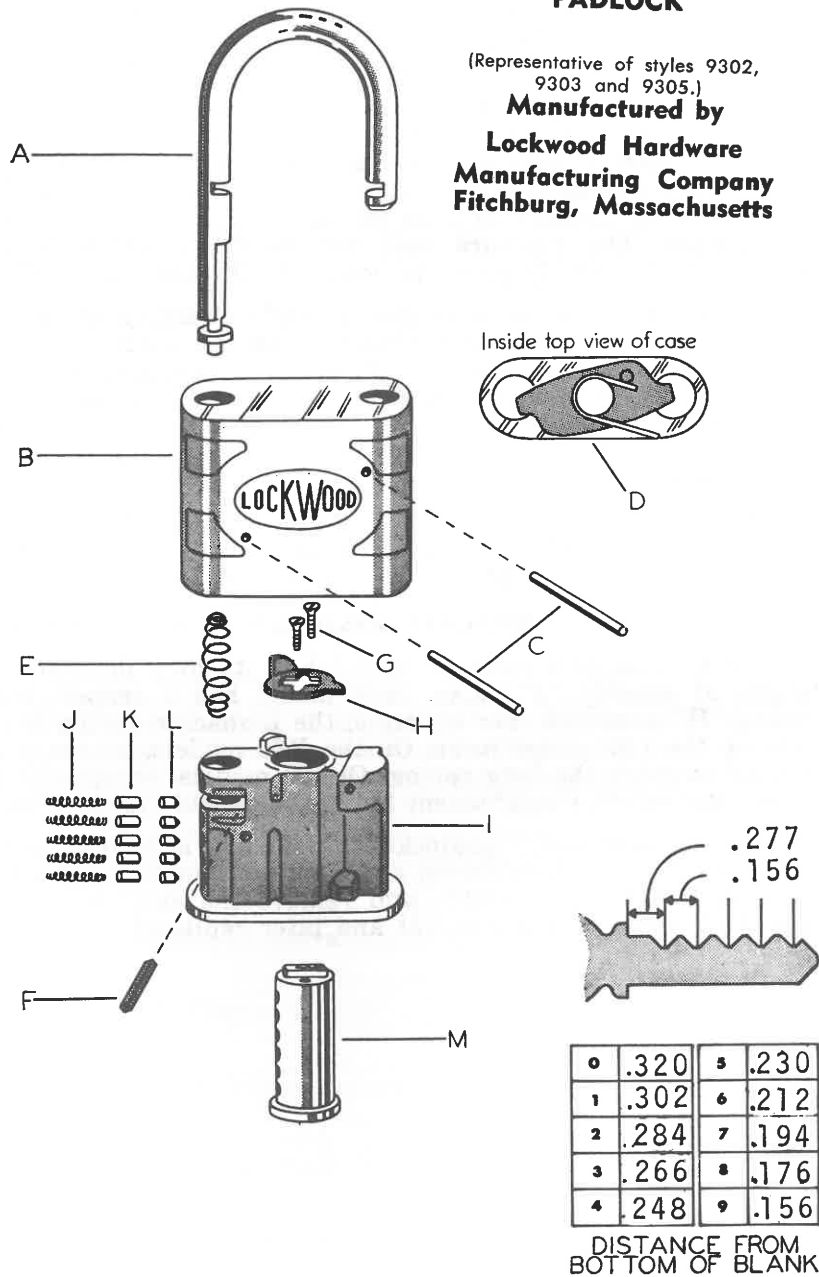
Each American padlock model has its own diameter and length of shackle "J"; also, each model has a certain length spring "H" to match. For example, the L shackle spring is used only on the L50 model locks. On the K60 models, an extra nail is used to guide the long spring. On all models, except the H10 series, the retainer mechanism holds the shackle in position.

On the H10 series padlocks, the shackle is held by a long hardened pin, which is driven and held into position by a short drive lock pin. To assemble and remove the shackle on these models, the pins are driven out and later replaced.

**LOCKWOOD No. 9304
PADLOCK**

(Representative of styles 9302,
9303 and 9305.)

**Manufactured by
Lockwood Hardware
Manufacturing Company
Fitchburg, Massachusetts**



NOMENCLATURE

- A — Shackle
- B — Case
- C — Plug Retainer Pins
- D — Shackle Bolt and Spring
- E — Shackle Spring
- F — Shackle Retainer
- G — Cam Screws
- H — Cam
- I — Plug Housing
- J — Plug
- K — Pins and Springs



SERVICE NOTES

The plug of this padlock is contained within the plug housing that fits into the case. Two retainer pins, finished flush with the case, hold the plug housing in position. With the shackle heel on left, the top retainer pin is located 17/32" down and 3/8" in from toe side. And, the bottom retainer pin is located 1-1/8" down and 17/32" in from the heel side. Rekeying requires separation of the plug housing from the case so that the cam can be taken off to allow removal of the plug.

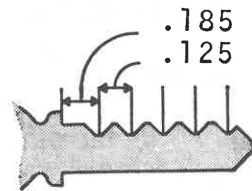
Before separating the plug housing from the case, open the shackle and turn the toe of the shackle 180° away from its bolt hole. This will hold the bolt back, thus preventing it from locking the shackle as the plug housing is pulled from the case. Pull the plug housing and shackle (attached to housing) out as far as it will go; this will expose the shackle retainer. Punch out the retainer to free the plug housing from the shackle; leave the shackle in this turned position in the case. Remove the cam screws and cam from the plug and rekey in the normal manner.

When replacing the plug housing (assembled with new combination in plug), keep the shackle toe turned as shown. This will keep the bolt retracted and will hold it in position to seat the cam properly. While in this position, first slide the base of the shackle into the plug housing and insert the shackle retainer. Then, push the plug housing fully up into the case (with the shackle still turned) and insert the plug housing retainer pins. Only after the retainer pins are inserted should you swing the shackle to its normal position.

Do not pull the plug housing out of the case, or do not let it slip from the case, after the shackle retainer is in or after the shackle has been locked. This will ease the cam away from the bolt which then will spring beyond its normal position for locking the shackle. Thus, there will be no way of repositioning the cam to retract the bolt. If this happens, drill a small hole 3/16" down at toe side to push in the bolt and free the shackle.

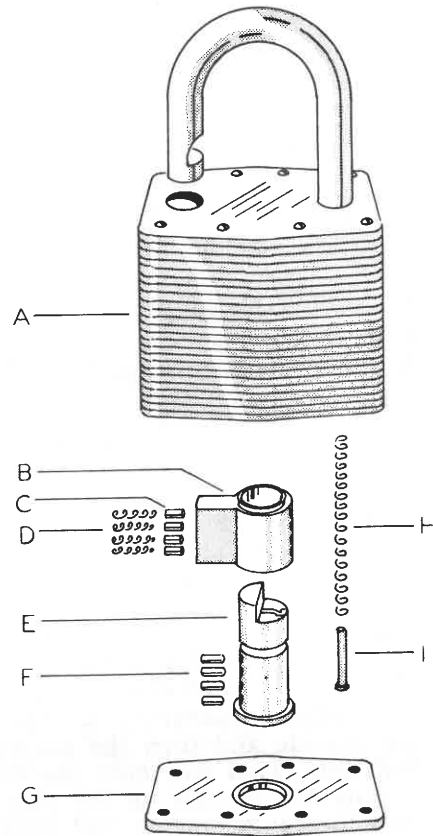
**MASTER No. 5
LAMINATED
PADLOCK**

Manufactured by
Master Lock
Company,
Milwaukee, Wisc.



0	.280	5	.204
1	.265	6	.189
2	.251	7	.173
3	.235	8	
4	.220	9	

DISTANCE FROM
BOTTOM OF BLANK



- A - Case (contains shackle and bolt)
- B - Cylinder Housing
- C - Top Pins
- D - Top Pin Springs

- E - Plug
- F - Bottom Pins
- G - Bottom Plate
- H - Shackle Spring
- I - Shackle Retaining Pin

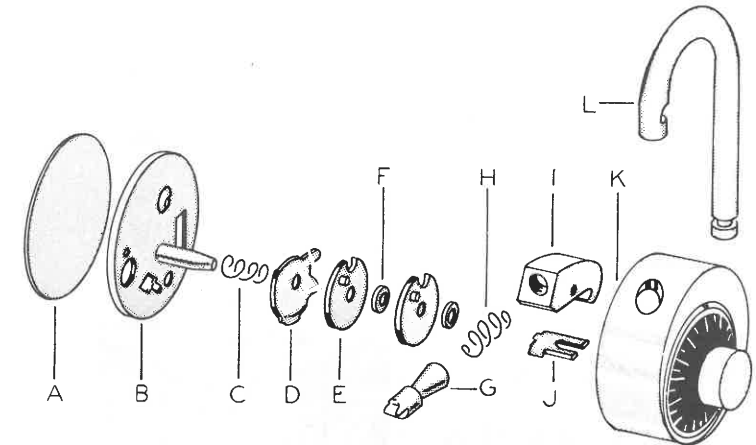
The body of the Master No. 5 padlock is made of a series of steel plates laminated into one unit by long rivets which are hydraulically pressed into position. Since the metal of the rivets expands during the manufacturing process, it is not practical to disassemble the case without damage, except for the removal of the bottom plate.

Removing the bottom plate will permit the removal of the cylinder for rekeying. A hollow mill should be used to shear off the heads of the rivets, after which the bottom plate can be pried up carefully. As the cylinder is removed, the shackle spring and the shackle retainer pin will drop out. Being a pin tumbler cylinder, rekeying can be done in the normal manner.

After rekeying, slide the cylinder into the case and replace the shackle spring and the shackle retainer pin. Position the bottom plate over its matching rivets and re-peen the rivet heads tightly.

**MASTER No. 1500
COMBINATION
PADLOCK**

Manufactured by
Master Lock
Company,
Milwaukee, Wisc.



- A - Back cover plate
- B - Wheel pack base plate
- C - Wheel pack spring
- D - Shackle release plate
- E - Tumbler
- F - Spacer washer

- G - Bolt
- H - Bolt spring
- I - Bolt housing and lever
- J - Shackle aligning plate
- K - Case
- L - Shackle

The Master No. 1500 combination padlock has a pressed steel case which is press fitted and spun over the back cover, making it impractical to disassemble the lock. It has three combination wheels (tumblers) and these wheels are pre-set. Also, there is a built-in scrambler that prevents the shackle from being pulled open immediately after closing. As further security features, a recent manufacturing change has increased the resistance to rapping while closer tolerances between the shackle and case make shimming impractical.

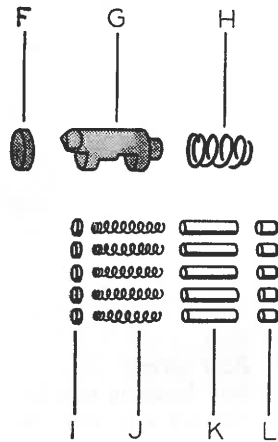
The combination sequence can be determined if the shackle is open. By peering into the shackle hole, it is possible to read on the dial the numbers for each combination wheel. If these are accurately read, the addition of eleven to each number will give the proper numbers.

Direction of rotation is right, left, right, as follows: Rotate dial right two or more turns, stopping at the first number. Then, rotate dial left one complete turn past the first number, stopping at the second number. Next, turn right to the third number and pull the shackle open.

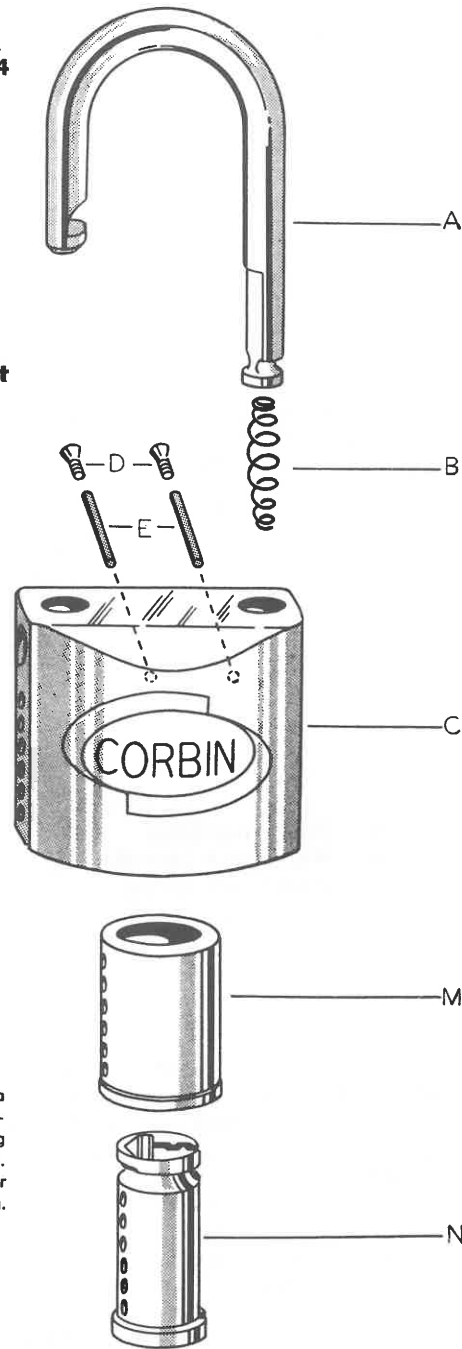
**CORBIN NO. 2863¹/₄
EXTRUDED PADLOCK**

(Representative of 2863¹/₄A,
2882 and 2883 styles)

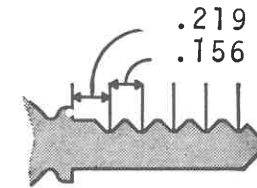
**Manufactured by
P. & F. Corbin Division
Emhart Corporation
New Britain, Connecticut**



Note! The 2863¹/₄ padlock has a master ring, thus providing mastering of this padlock into existing systems using 5 or 6 pin cylinders. Nos. 2882 and 2883 are smaller sized padlocks with no master ring.



- A —Shackle
- B —Shackle Spring
- C —Case
- D —Retainer Pin Caps
- E —Retainer Pins (In back of case)
- F —Shackle Bolt Cap
- G —Shackle Bolt
- H —Shackle Bolt Spring
- I —Pin Chamber Caps
- J —Springs
- K —Top Pins
- L —Bottom Pins
- M —Master Ring
- N —Plug



0	.339	5	.269
1	.325	6	.255
2	.311	7	.241
3	.297	8	.227
4	.283	9	.213

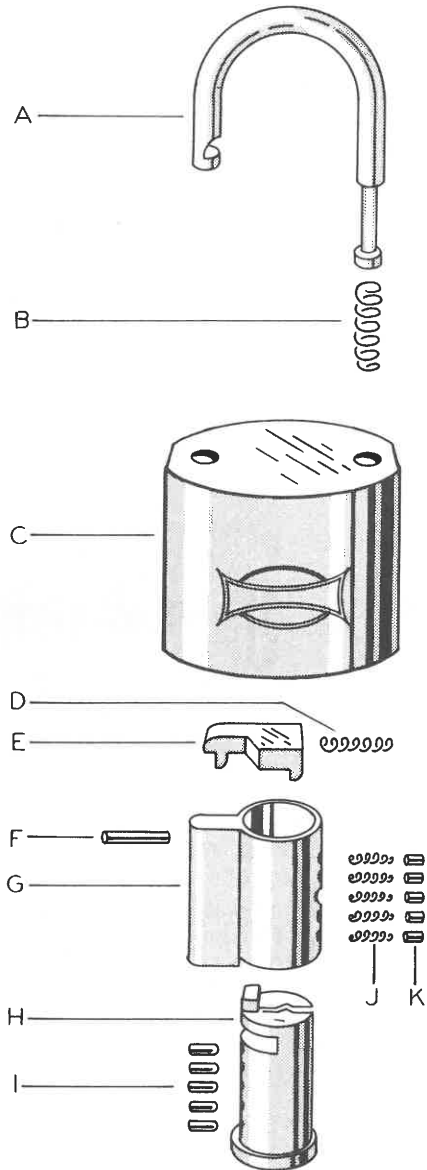
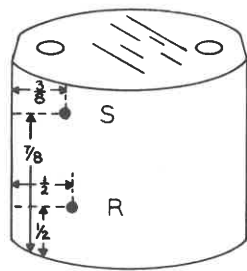
DISTANCE FROM
BOTTOM OF BLANK

On 2863¹/₄ style, pin chambers are covered with caps which are press fitted into chamber holes and finished flush with case. Caps located on left side of case face. Centers of caps ¹/₄" in from either edge of side face. First cap ⁷/₃₂" up from bottom of case. Shackle retainer pin cap is ¹/₂" in from left side, ⁵/₈" down from top of case. Plug retainer cap is 1-⁶/₃₂" in from left side, 19/₃₂" down from top of case.

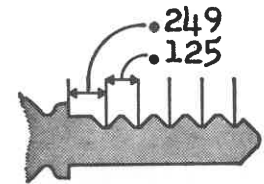
On 2882 and 2883 styles, pin chambers are covered with plate, press fitted in slot on left side of case. To remove plate, insert punch into toe hole (open shackle) and tap out plate. On 2883 style, shackle retainer cap is ¹⁵/₁₆" in from left side, 19/₃₂" down from top. Plug retainer is 1-¹/₁₆" in from left side, 17/₃₂" down from top. On 2882 styles, shackle retainer cap is ¹/₂" in from left side, ⁹/₁₆" down from top. Plug retainer is 1-⁵/₃₂" in from left side, 19/₃₂" down.

**REESE No. 580
PADLOCK**

Manufactured
by Waterbury
Lock and Specialty
Company,
Milford, Conn.



- A - Shackle
- B - Shackle Spring
- C - Case
- D - Bolt Spring
- E - Bolt
- F - Plug Retainer Pin
- G - Cylinder Housing
- H - Plug
- I - Bottom Pins
- J - Top Pin Springs
- K - Top Pins



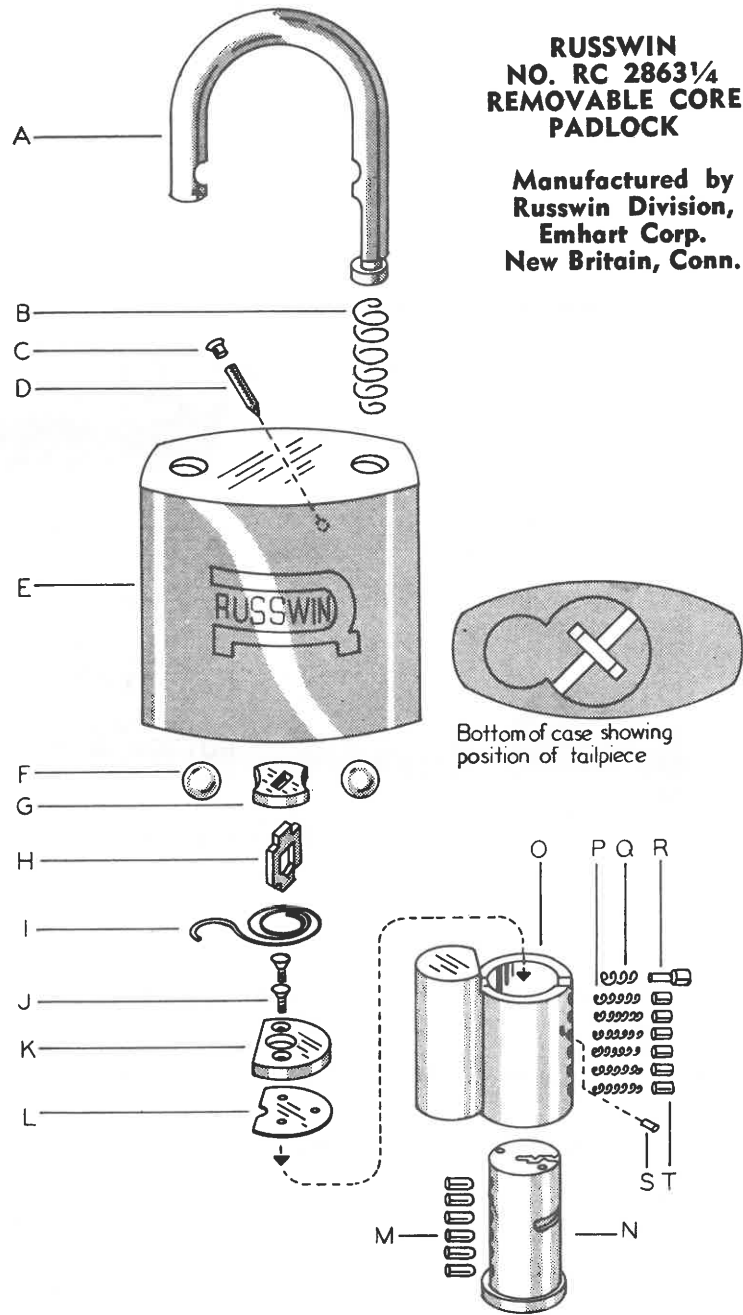
0	.265	5	.196
1	.256	6	.181
2	.241	7	.166
3	.226	8	.151
4	.211	9	

DISTANCE FROM
BOTTOM OF BLANK

The case of the Reese No. 580 padlock is extruded from solid brass and it has only one opening for a complete cylinder unit. There are no pin chambers in the case. Instead, a complete cylinder is anchored into the case by a retainer pin that rests in a notch partly cut in the bottom cylinder wall.

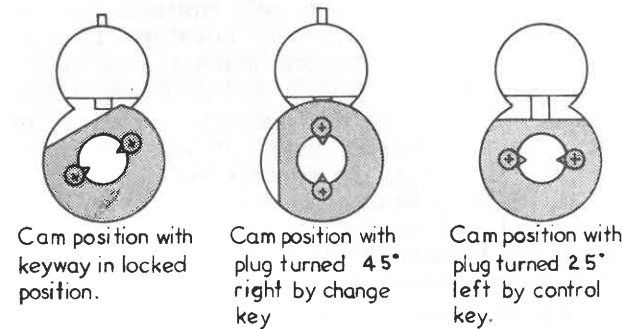
Disassembly for rekeying is possible by drilling out the retainer pin. For drilling dimensions, refer to R in the Exploded View. With the retainer pin out, the cylinder can be removed and serviced in the normal manner. Note that a separate retainer pin secures the plug into the cylinder housing.

The shackle also is held by a retainer pin. During normal rekeying, the shackle, bolt and spring do not have to be removed. In the event the shackle must be removed, the shackle retaining pin must be drilled out. For drilling dimensions, refer to S in the Exploded View.



- A—Shackle
- B—Shackle Spring
- C—Lock Cam Tail piece retain-
ing pin cap
- D—Lock Cam Tail piece retain-
ing pin
- E—Case
- F—Steel locking balls
- G—Lock cam (bolt)
- H—Lock cam tail piece
- I—Spring
- J—Cylinder cam retaining
screws

- K—Cylinder cam
- L—Spacer washer (and keyway
guard)
- M—Bottom pins
- N—Plug
- O—Cylinder Housing
- P—Driver springs
- Q—Cylinder retaining pin
spring
- R—Cylinder retaining pin
- S—Plug travel stop pin (also
holds plug in cylinder)
- T—Drivers (top pins)



SERVICE NOTES

This padlock compliments the line of removable core cylinders available for Russwin mortise and cylindrical locksets. It is designed to permit rapid interchange of cylinder units.

The removable core cylinder is secured within the extruded brass padlock case by a spring loaded locking pin. This pin is shown extending from the top of the cylinder housing in the left drawing of Figure 1, which illustrates back views of the cylinder. Note that the bottom of this pin rests at one end of a flat present in the cylinder cam (shaded portion).

The middle view of Figure 1 shows the action resulting from turning the plug with a change or master key. Both of these keys can turn in one direction only — *right*. When this occurs, the locking pin rests on the arc of the cylinder cam and is held up in its locking position. And, the flat of the cylinder cam is turned away from the locking pin.

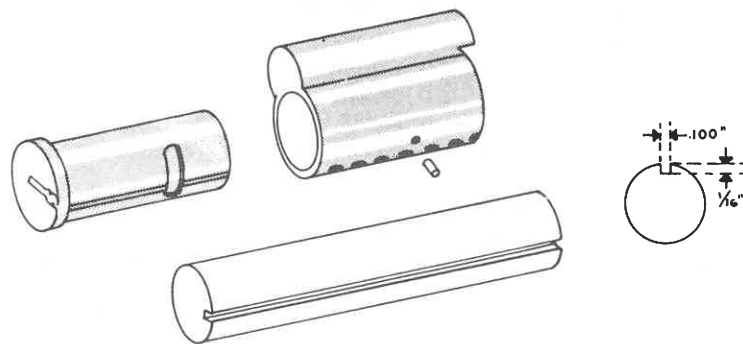
The right view of Figure 1 shows the action resulting from turning the plug with its special control key. This key can turn the plug *either right or left*. When turned *left*, it positions the flat of the cylinder cam under the locking pin. The downward pressure of the pin's spring, therefore, forces the pin down to free the cylinder for removal.

From the above, it is obvious that the clue to the removal of the cylinder unit is the direction of rotation of the keys. The control key can rotate either right or left, and a *left* rotation is needed to drop the locking pin. However, the change and master keys can rotate *right* only, which turns the flat of the cam away from the locking pin.

The factor which controls the direction of rotation of the keys is an additional stop pin that extends through the cylinder housing and into the plug. A notch is cut into the plug to accommodate this pin so that the pin not only controls the key rotation but also holds the plug in the cylinder housing. This stop pin is located at the bottom of the cylinder housing, just to the right of the keyway, and between the fourth and fifth pin positions.

In this location, the stop pin presents a barrier to the left rotation of change and master keys. It permits these keys to rotate right only. However, the control key has a *special notch* on the bottom of its blade to by-pass this pin. Thus, the difference between the control and change or master keys is the presence of the notch on the bottom of the blade. The control key *has* a notch; the change and master keys *do not*.

The stop pin also requires consideration when removing the plug for rekeying. A special follower tool, having a slot to by-pass the stop pin, is needed (See Figure 2). Also, because of the position of the stop pin, the control key *must* be used to turn the plug for removal. The control key will rotate the plug so that the keyway lines up with the stop pin and thus permits the plug to be pushed out. The dimensions for the special follower tool are shown in Figure 2.



When the plug is out, the notch for the stop pin can be seen clearly. Note that it is placed more to the right so that it creates a positive stop in each direction. The plug is a six pin unit that permits several levels of keying from simple mastering to great grand mastering. It is serviced in the usual manner.

It should be noted also that there is no special shear line in this cylinder. All of the change and master keys, as well as the control key, operate off the same shear line.

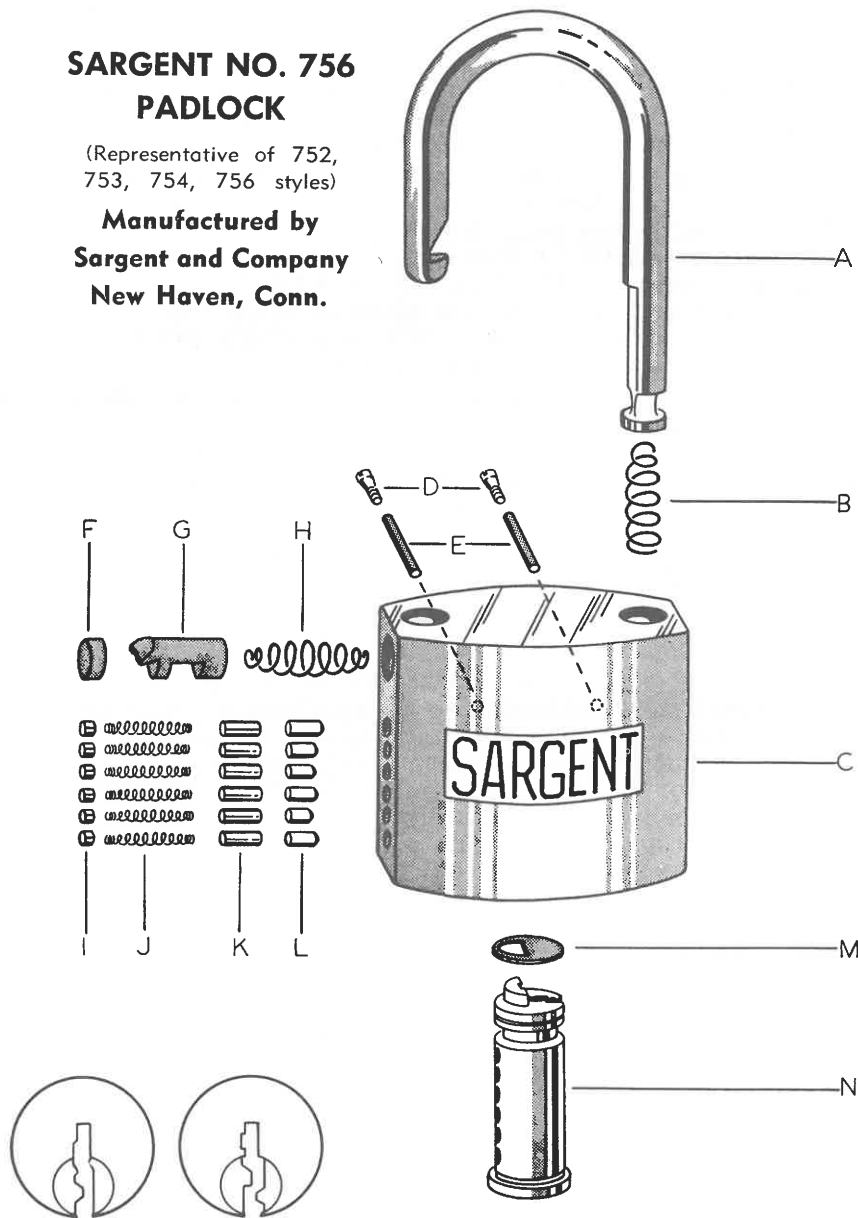
Removing the cylinder unit from the case does not disturb the shackle locking mechanism, which remains in the case. This padlock has steel locking balls to lock the shackle heel and toe. The balls are controlled by a lock cam, which is a brass unit having opposite curvatures. The lock cam is activated by a tail piece that fits within the cylinder cam attached to the rear of the plug. And, a clock spring made of round wire, exerts pressure on the lock cam to hold it in the locked position.

Normally, the lock cam tail piece, the lock cam and the locking balls are not removed. All of these parts are held in the case by a separate steel retainer pin. This pin is installed diagonally through the case so that it extends through the lock cam tail piece and secures all of the shackle locking parts. In the event the shackle locking parts are to be removed, the cap screw covering the lock cam tail piece must be taken out of the back of the case. Then, the pin can be dropped out to free the lock cam tail piece.

SARGENT NO. 756 PADLOCK

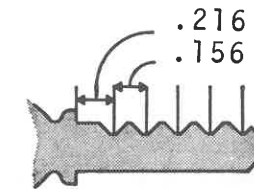
(Representative of 752,
753, 754, 756 styles)

Manufactured by
Sargent and Company
New Haven, Conn.



A—Shackle
B—Shackle Spring
C—Case
D—Plug Retainer Caps
E—Plug Retainer Pins
F—Shackle Bolt Cap
G—Shackle Bolt

H—Shackle Bolt Spring
I—Pin Chamber Caps
J—Springs
K—Top Pins
L—Bottom Pins
M—Keyway Guard
N—Plug (5 or 6 pin)



0		5	.278
1	.328	6	.265
2	.315	7	.253
3	.303	8	.240
4	.290	9	.228

DISTANCE FROM
BOTTOM OF BLANK

This padlock has an extruded case pre-drilled for pin, plug, plug retainer and bolt holes. Plug is held by two retainer pins, anchored by two screw caps that are finished flush with the case.

Pin chambers also are covered by caps, which are press fitted into the chamber holes and finished flush with the case. These caps are located on the left side of the case. Centers of the caps are $7/32$ " in from either edge of the side face of the case. Position of center of first cap is $6/32$ " up from bottom of case.

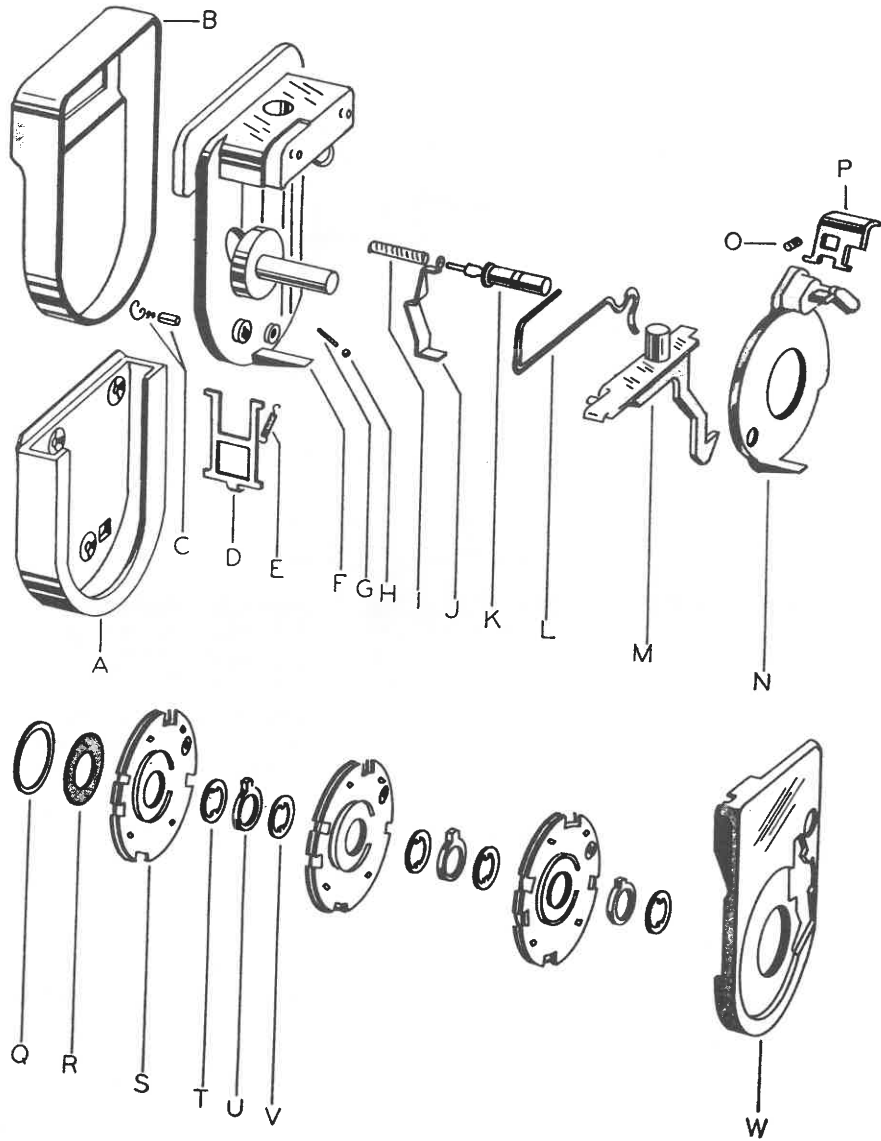
It is not advisable to rekey this padlock by removing the plug. To rekey, drill out pin caps and dump out all pins and springs. Cut key and set new combination to an old plug. Then, load bottom pins for new combination into plug in padlock case. Load top pins and springs. Install new pin caps and finish flush with case.

If plug must be removed, turn case over so pin chambers are on right side. First plug retainer pin located $1/2$ " in from left side of case and $21/32$ " down from top. Second retainer pin located $1-3/16$ " in from left side of case, $5/8$ " down from top. Drill out retainer caps and dump out retainer pins.

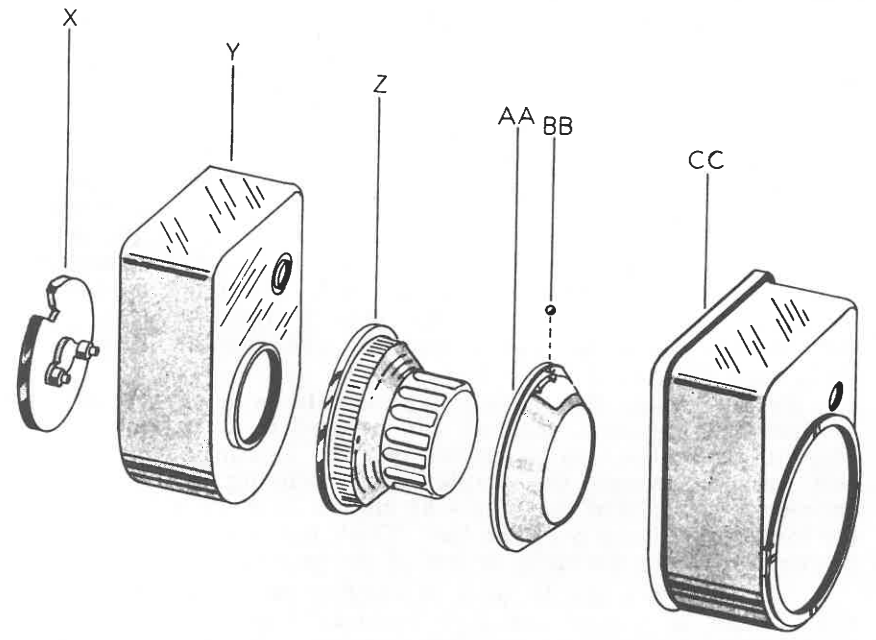
No. 8065 FILE CABINET COMBINATION PADLOCK

Manufactured by

Sargent & Greenleaf, Inc., Rochester, New York



- A—Shoe Plate
- B—Back Cover
- C—Shoe Retaining pin and spring
- D—Wheel Pack Scrambler
- E—Scrambler Spring
- F—Lock Mechanism Base
- G—Spring
- H—Indexing Ball Bearing
- I—Push Button Spring
- J—Push Button Retainer
- K—Push Button
- L—Retainer Clip
- M—Shackle (Bolt)
- N—Lever Positioning Plate
- O—Lever Spring
- P—Lever
- Q—Base Retainer Spring Clip
- R—Spacer Washer
- S—Key Change Wheels
- T—Wheel Washers
- U—Movable Flies
- V—Wheel Washers
- W—Lock Mechanism Cover
- X—Drive Cam
- Y—Inner Lock Case
- Z—Dial
- AA—Dial Ring
- BB—Dial Ring Index Bearing
- CC—Lock Cover



S & G #8065 COMBINATION PADLOCK SERVICE NOTES

This padlock, designed especially for high security protection file cabinets and room doors, has unusual features. It is a three wheel key change combination padlock that has a concealed locking engagement (See Figure 1). The locking bolt is recessed in the back of the lock case and it is completely concealed in the locked position.

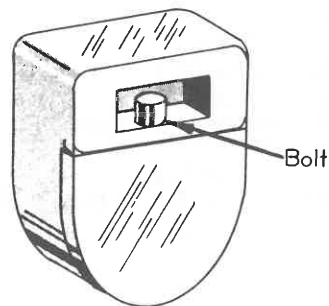


Figure 1

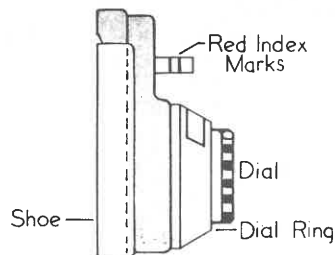


Figure 2

Several components make up the case. There is a movable dial ring, an outer case and a hardened inner case with a lead shield that surrounds the lock mechanism. In addition, there is a shoe plate on the back of the case to conceal the change key hole.

The shoe plate also is designed to be used for mounting the lock, if desired. Three countersunk holes, ready for knockout, are on the inside surface of the shoe plate. Through these holes can pass either screws or rivets to anchor the shoe to a part of the protective container, such as the face of a drawer.

Once the shoe is attached in this manner, the lock can be securely engaged in the shoe by dialing the combination and removal can be made only by persons having the combination. This type of mounting keeps the lock permanently on the drawer face. When the drawer is closed, a turn of the dial releases the scrambler and positive locking is assured. When the combination numbers are correctly dialed, the shoe is removable to permit combination changing (See Figure 2). Behind the shoe is the main back cover of the lock case.

Because many file cabinet bar locks have a staple positioned as shown in Figure 3, the lock can be used in a vertical position. This allows the lock to be placed over the locking bar, so that its bolt passes through the staple, thus securing the bar. Other cabinets, which have the staple as shown in Figure 4, also allow the lock to be placed over the bar. Thus, the position of the staple places the lock to the right or left of the person using it.

Since the lock can be used in varying positions, the dial ring may be set to any of the four quadrants on the dial for easy reading and dialing. A small ball bearing locks the dial ring into any of the four possible operating positions. This movable feature permits the opening index of the dial shield to be set to a 12 o'clock

position at 0, to a 3 o'clock position at 15, to a 6 o'clock position at 30 or to a 9 o'clock position at 45. Thus, the person dialing the combination can always have the opening index in front.

When the lock is placed on the staple of the bar lock, and the bolt has been thrown, both the bolt and the staple are inaccessible. Also, in this position, the back of the case is inaccessible, thus preventing removal of the shoe for peering into the change hole.

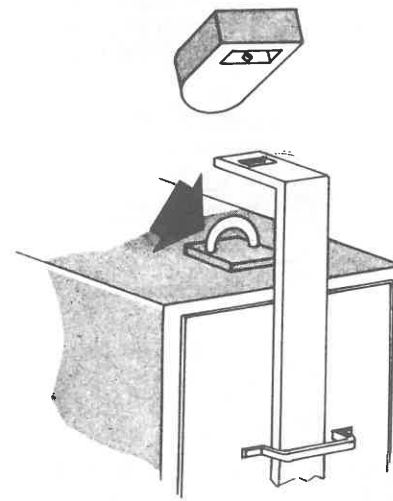


Figure 3

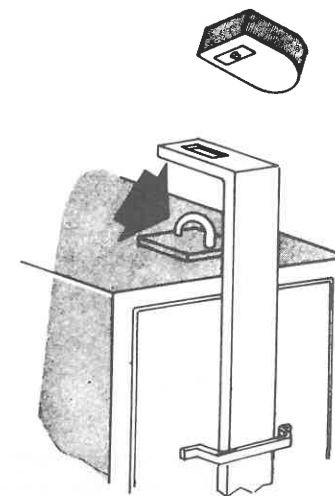


Figure 4

To use the lock, the combination is dialed in the usual manner, that is, the conventional direction of rotation is followed. In this opening sequence, the dial is first turned left (counterclockwise) at least four full turns to get all wheels turning. Then, the first number of the combination is set on the opening index. Next, the direction of rotation is reversed and the dial is rotated right (clockwise) for three turns so that the second number can be set on the same index. Another reversal of direction is made to rotate the dial two turns left to set the third number on the opening index. Then, the dial is turned right to zero (or to the 15, 30 or 45 number if the dial has been so set).

After all of the combination numbers have been dialed, the push button visible on the face of the lock is depressed fully and released. The dial then is turned right; this action engages the bolt. Continued turning of the dial retracts the bolt so the lock can be lifted off the staple.

In order to change the combination of the lock, all numbers of the combination must be dialed on the *opening index*. The push button is depressed fully once and released. Then, the push button is depressed again, but, this time only *partially*, halfway between the two red lines (See Figure 2) on its shaft. The button is held in this position while the dial is turned to the left until it stops or is free to turn. The result of this action allows the shoe to be removed from the lock, thus exposing the change key hole.

After the shoe has been removed, all operations for dialing the combination must be repeated, except that the *changing index* is used (Figure 5). This lines up the change key hole in each wheel with the change key hole in the back of the lock case. The change key (Figure 6) then is inserted and turned to the only possible position — left. The new combination then can be set into the wheels. The three numbers of the new combination must be dialed in the same order as the original setting, except that the fourth number, or opening index, is not used. The correct number of turns are essential for each number, and the changing index is used.

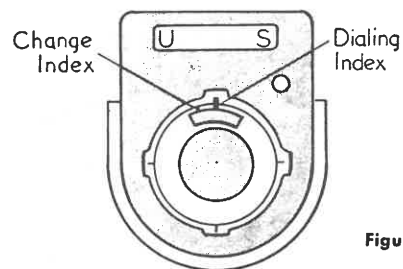


Figure 5



Figure 6

Turning the change key to the right locks the new combination in the wheels. Now the new combination should be tested on the *changing index*. If the procedure was done correctly, the change key can be inserted through its key hole and into the wheel pack. As with any combination lock, it is wise to check the new combination at least three times on the changing index before the wheels are dialed on the opening index. Each time the lock is checked, the change key should be fitted into its key hole to insure that all parts are operating correctly.

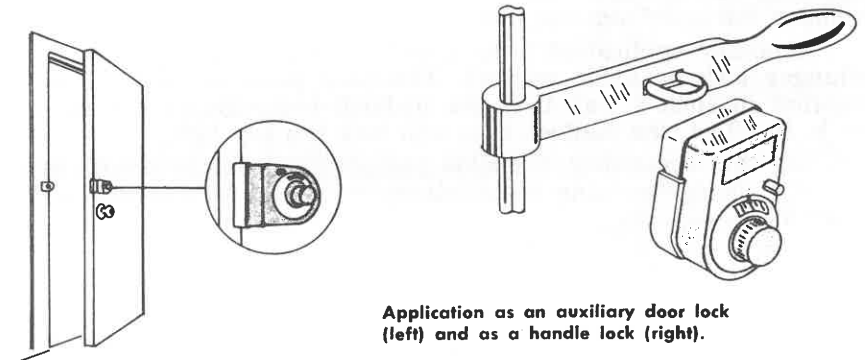
The shoe of the lock then is placed over the back of the case and the new combination dialed on the changing index. At this point, the push button is depressed fully and released; it should reposition itself halfway between the down and open position. That is, the button no longer will be set between the two red lines and both lines will be visible. Turning the dial right will cause the shoe retaining pin to lock the shoe in place so that the lock is ready for use.

This manipulation proof padlock has been designed to offer high security against intrusion by manipulation, force, X ray, drilling, and other means of attack. Care should be used during the changing of the combination — always be certain to try the new numbers at least three times before replacing the lock into the shoe. The lock cannot be disassembled for security reasons and a mistake may require destruction of the lock to remove it from the cabinet.

ADDITIONAL USES OF S & G 8065 PADLOCK

The hidden bolt of this padlock, and the shoe plate into which the padlock fits, gives this lock an unusual degree of security. By lying flat in the installed position, the lock covers the locking members (bolt and strike) completely. And, the shoe plate hides the change key hole. Even if the bolt is retracted (combination dialed), the padlock remains in the shoe to keep the change key hole covered.

In addition, the flat installed position gives the padlock versatility beyond its normal application. Normally, the lock straddles a staple or eye strike to secure a bar placed on the strike. Such a bar usually is the locking bar which extends down the front of a file cabinet to secure all drawers. Or, it could be a handle arrangement, such as on trucks and heavy doors, where locking security is required. With installations of this nature, the lock serves as a padlock, in that it is an unmounted unit that secures two members.



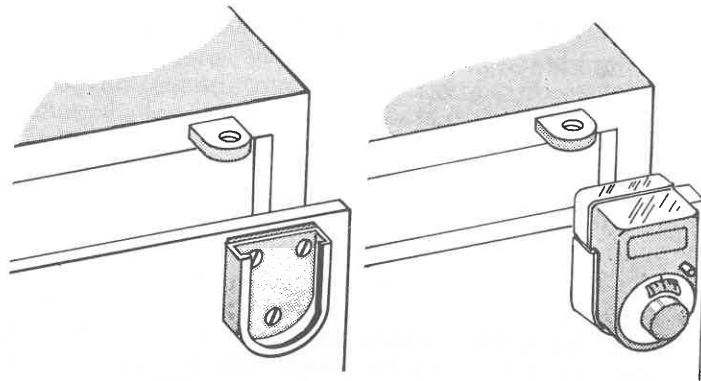
Application as an auxiliary door lock (left) and as a handle lock (right).

The shoe plate, however, permits the lock to be mounted so that it can serve as an auxiliary or primary device for securing a drawer or a door. Many applications are possible. It can be mounted on desks to secure a single drawer or to secure cabinet doors. It can be used to lock just one drawer of a multi-drawer file cabinet. For special rooms and closets, it can be mounted above the regular lock to serve as an auxiliary deadlock. For situations of high security, it can provide combination opening in addition to the regular key operated protection.

To set the lock for mounted operation, the shoe plate is removed from the case and is secured to the drawer or door. Three knock-outs in the *inside* of the shoe are punched out or drilled to permit rivets or screws to mount the shoe. A staple (usually a flat bar with a bolt hole) is secured to the door or drawer frame to provide the anchor for the bolt. Of course, the mounting is made so that the staple will fit into the recess in back of the padlock case with the bolt entering the staple hole.

Once the staple and shoe plate are mounted, the lock is installed in the shoe plate and operated to activate the lock retaining pin. This will anchor the padlock to the shoe plate. In normal

Mounted applications on file cabinets and drawers

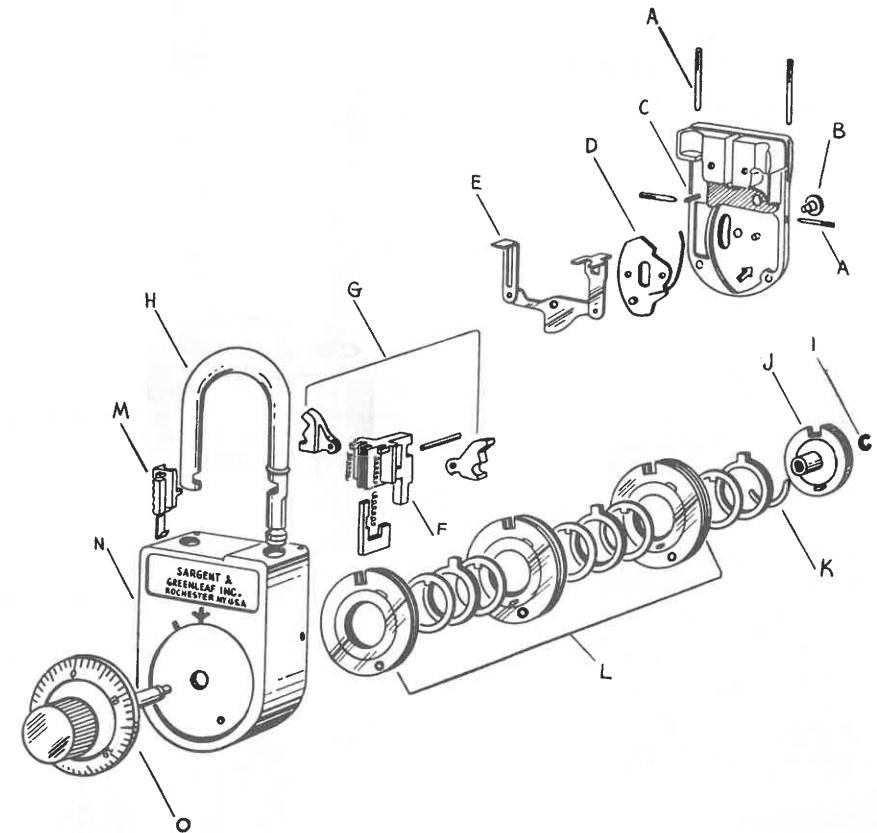


operation, the bolt can be retracted without the lock being removed from the shoe. When the combination is to be changed, however, the lock can be operated to retract the retaining pin and thus remove the lock from the shoe.

Another application is to mount the lock so that it covers the plunger lock of a file cabinet. The shoe plate is secured to the cabinet in such a way that the padlock body covers the plunger lock. In effect, the padlock then will lock the key lock.

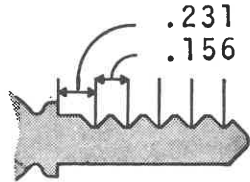
By this versatility, the 8065 padlock gives the locksmith much freedom in customizing installations to the particular needs of a customer's security.

No. 8088 Combination Padlock Manufactured by Sargent & Greenleaf, Rochester, N. Y.



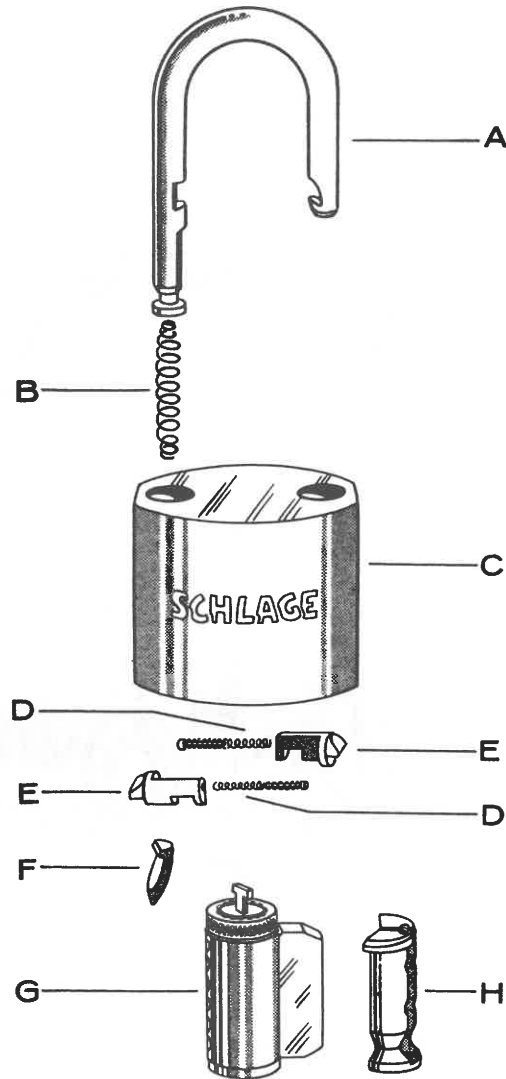
- | | |
|---|------------------------------------|
| A. Retaining Pins | G. Shackle Bolts |
| B. Key Slide Button (Moves slide to permit changing key to enter) | H. Shackle |
| C. Rear Case Plate | I. Retaining clip for driving disc |
| D. Keyway Guard (Will not move unless lock is open) | J. Driving Disc |
| E. Shackle Carrier (Controls keyway guard and scrambler Device M. Operates off heel side of shackle.) | K. Retaining Washer |
| F. Locking Dog for Discs and Carrier for Shackle Bolts. | L. Tumbler wheels |
| | M. Scrambler Device |
| | N. Case |
| | O. Dial and Spindle |

No. 910 PADLOCK
Manufactured by
Schlage Lock Company
San Francisco, California



0.	335	5	260
1.	320	6	245
2.	305	7	230
3.	290	8	215
4.	275	9	200

DISTANCE FROM
BOTTOM OF BLANK



A—Shackle
B—Shackle Spring
C—Case
D—Bolt Springs

E—Bolts
F—Shackle Retainer
G—Cylinder
H—Cylinder Retainer

SERVICE NOTES

The case for this padlock is solid brass, extruded for the necessary shackle, bolt and cylinder holes. A regular Schlage pin tumbler cylinder is used, permitting this padlock to be keyed to mastered systems. This construction also permits the interchangeability of Schlage cylinders.

A large retainer sleeve, which fits over the upper chamber of the cylinder, holds the cylinder in place. From the plug face, this sleeve gives the impression of a removable core cylinder. However, the retainer is secured by a single screw accessible through the shackle toe hole. To remove the cylinder, the shackle is opened and a screwdriver inserted into the toe hole to turn the retainer screw (See Figure 1). Note that this screw cannot be removed from the shackle hole. With the retainer screw free, turn the plug and pull the cylinder and retainer sleeve from the case.

When replacing the cylinder and retainer sleeve, it is necessary to ease the "T" shaped tailpiece into the notches of the shackle bolts. The proper engagement is shown in Figure 2. It may be necessary to turn the plug slightly in order to ease the tailpiece into position. With the cylinder and sleeve fully seated (pushed all the way in), the key is turned clockwise as far as it will go and held there while the retainer screw is tightened.

Figure 3 shows position of the tailpiece as the plug is turned to the open position. If the shackle bolt does not lock, the retaining screw has not been tightened sufficiently.

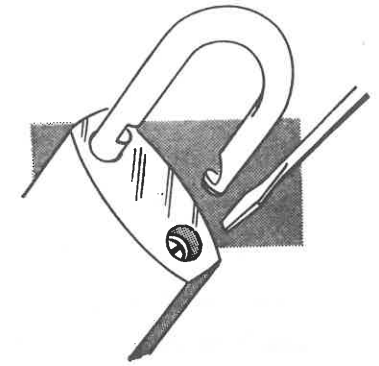


Figure 1

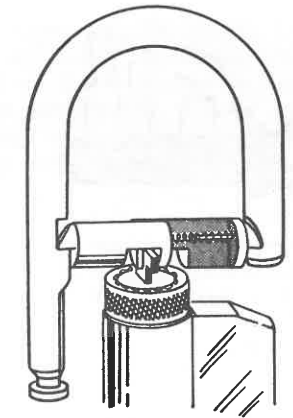


Figure 2

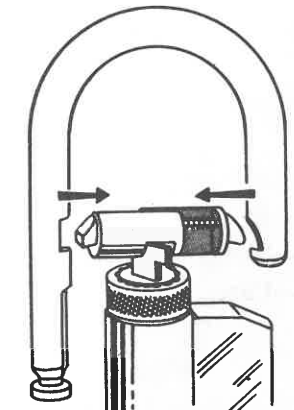
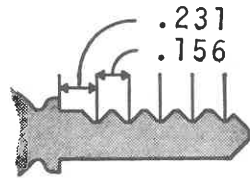
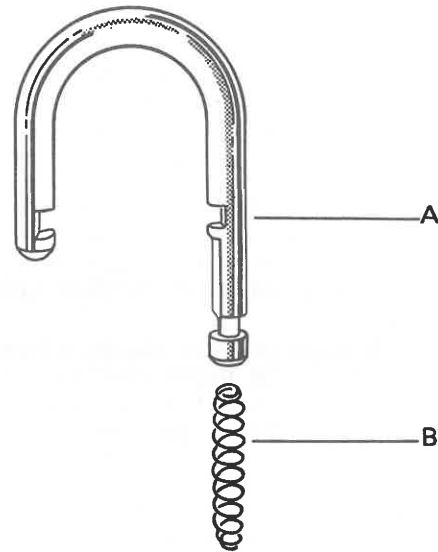


Figure 3

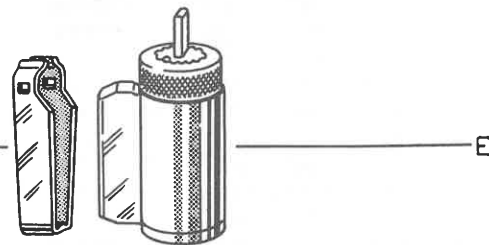
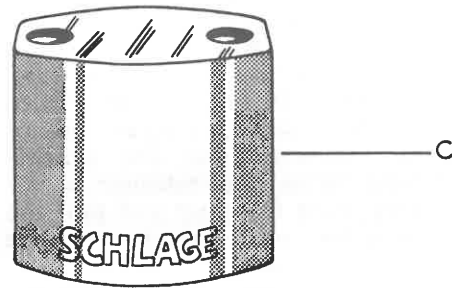
No. 912 PADLOCK

**Manufactured by
Schlage Lock Company
San Francisco, California**



0	.335	5	.260
1	.320	6	.245
2	.305	7	.230
3	.290	8	.215
4	.275	9	.200

DISTANCE FROM
BOTTOM OF BLANK



A—Shackle
B—Shackle Spring
C—Case

D—Cylinder Retainer
E—Cylinder

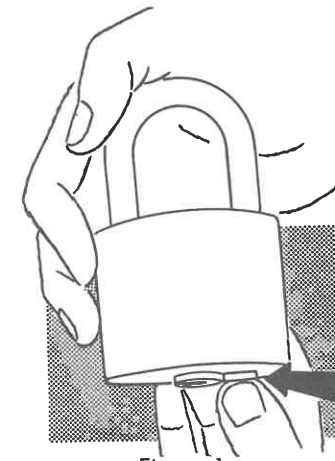


Figure 1

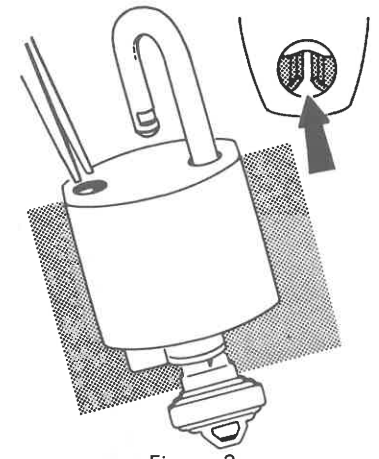


Figure 2

SERVICE NOTES

This padlock has a hollow case, braced on the inside to support a regular Schlage pin tumbler cylinder. A large retainer sleeve encircles the upper pin chamber of the cylinder to hold the cylinder in the case. This construction allows the use of regular Schlage cylinders which can be keyed into mastered systems. Principle features are ease of cylinder removal and interchangeability of Schlage cylinders.

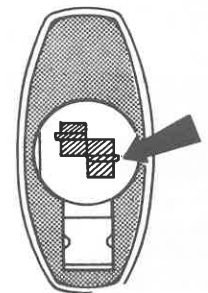
To remove the cylinder, open shackle and insert tweezers into shackle toe hole to squeeze ends of cylinder retainer together (See Figure 1). Push downward and cylinder can be withdrawn. After rekeying, replace retainer on cylinder and insert unit into case, pushing it on the retainer until the retainer snaps in (See Figure 2).

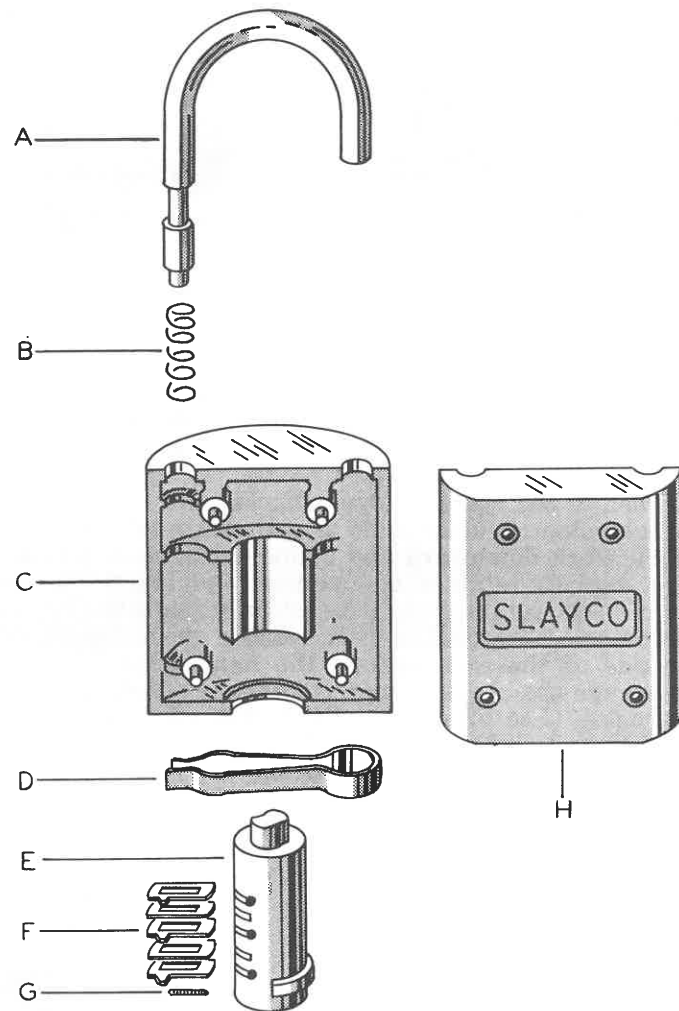
To remove the shackle, first remove the cylinder. Then, tap the toe side of the case against the hand (See Figure 3). This will disengage the shackle and will expose a flat edge at the heel of the shackle (See Figure 3). Turn case up (with shackle pointing down). Insert pointed tool into case and move right dog (arrow, Figure 4) to drop out shackle.

Figure 3



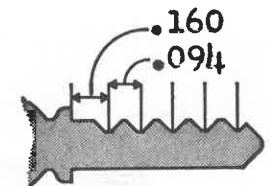
Figure 4





**SLAYMAKER
No. 78 PADLOCK**

Manufactured by
Slaymaker Lock
Company
Lancaster, Pa.

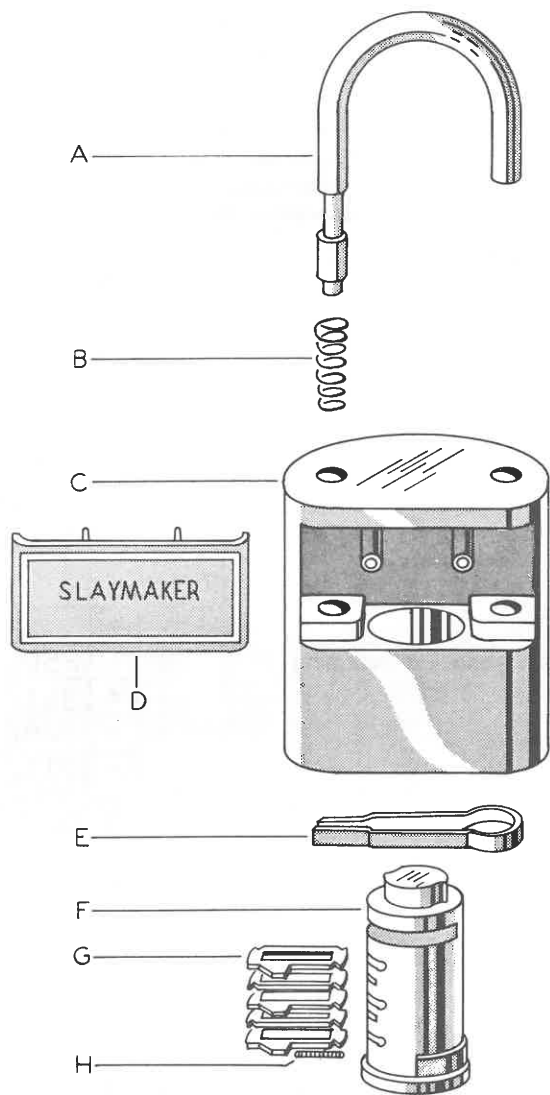


- A - Shackle
- B - Shackle Spring
- C - Case
- D - Spring Bolt (Shackle retainer)
- E - Plug
- F - Discs
- G - Disc Springs
- H - Case Cover

0		5	.196
1	.256	6	
2	.241	7	
3	.226	8	
4	.211	9	

DISTANCE FROM
BOTTOM OF BLANK

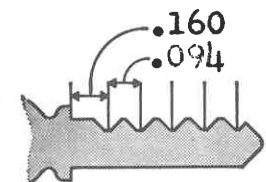
The No. 78 padlock by Slaymaker is a cast brass disc tumbler lock which can be serviced by the locksmith, if care is taken in disassembly. The case of the lock is made in two pieces that can be separated with the aid of a knife-like tool. Four cast bosses, which are part of the case cover fit into matching holes in the case. The ends of the bosses are peened to secure the two parts. When the case and cover have been separated, the plug can be lifted out for servicing.



**SLAYMAKER
No. 701 PADLOCK**

**Manufactured by
Slaymaker Lock Co.
Lancaster, Pa.**

- A - Shackle
- B - Shackle Spring
- C - Case
- D - Name Plate & Case Cover
- E - Spring Bolt (Shackle Retainer)
- F - Plug
- G - Discs
- H - Disc Springs



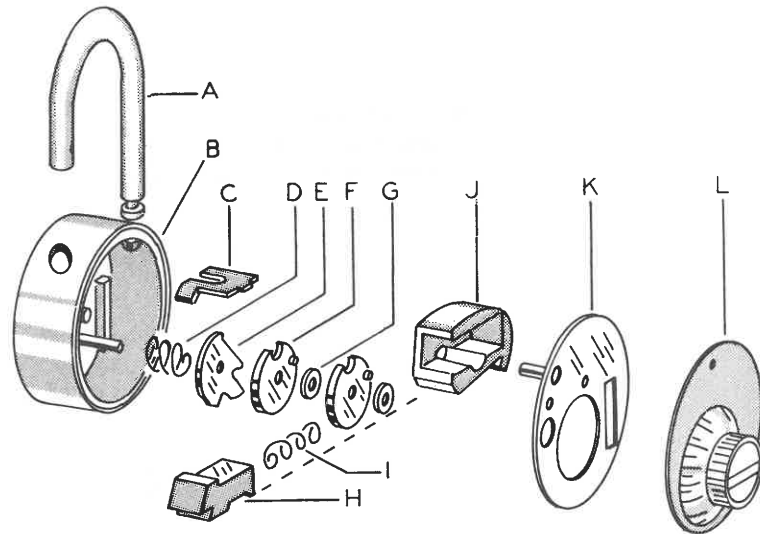
0		5	.196
1	.256	6	
2	.241	7	
3	.226	8	
4	.211	9	

DISTANCE FROM
BOTTOM OF BLANK

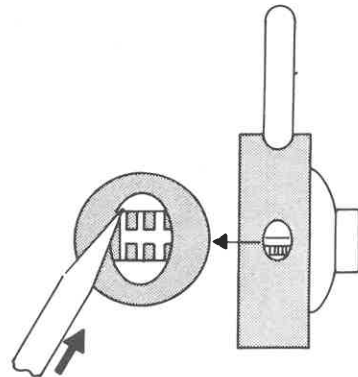
The No. 701 die cast disc tumbler padlock made by Slaymaker can be serviced by the locksmith when necessary. On the back of the lock case, there is a removable name plate. This is press fitted into the case to serve the dual purpose of acting as a shackle retainer and also as a plug retainer. With care, this can be removed by prying from alternate sides of the plate. Use care to avoid breaking the boss (or pins) on the back of the plate. Once this is removed, the plug can be removed from the bottom of the case and serviced in the usual manner.

**SLAYMAKER No. 855
COMBINATION
PADLOCK**

**Manufactured by
Slaymaker Lock
Company,
Lancaster, Pa.**



- A - Shackle
- B - Case
- C - Shackle Retainer
- D - Spring
- E - Shackle Release Cam
- F - Combination Wheel (Tumbler)
- G - Spacer Washer
- H - Bolt
- I - Bolt Spring
- J - Bolt Housing and Lever
- K - Aligning Plate
- L - Dial and Cover Plate (Has third combination wheel permanently attached to underside)



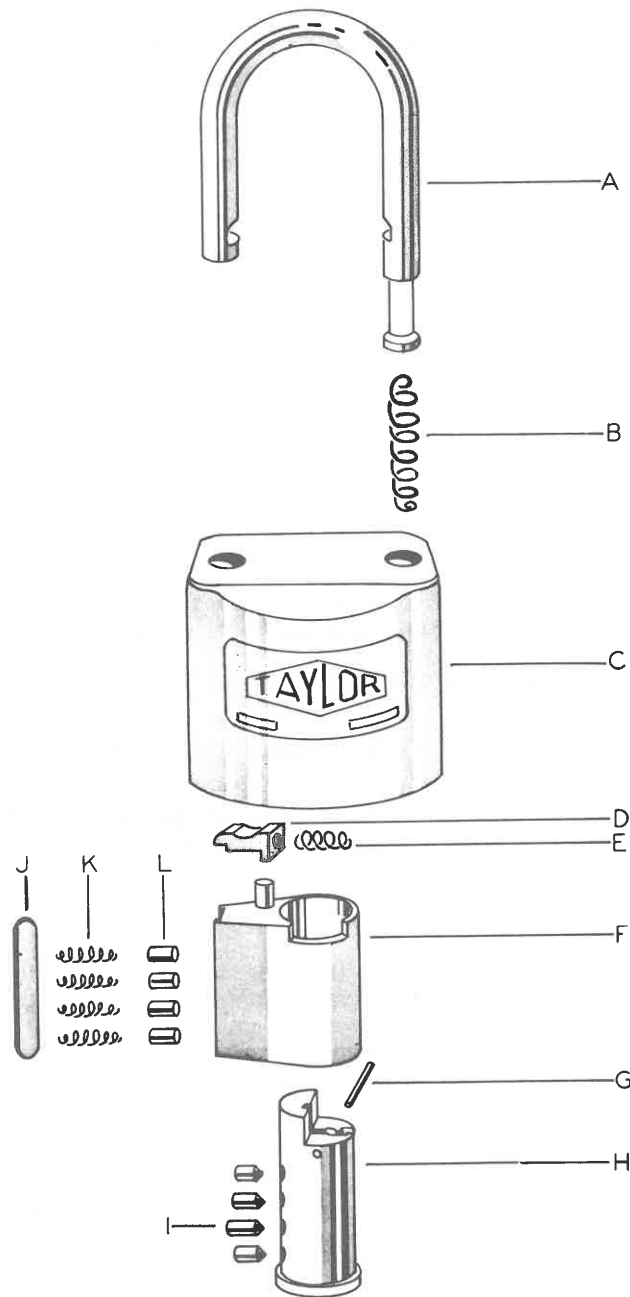
Disassembly of the No. 855 combination padlock is not practical since the case is peened over the aligning plate to form a closed lock body. However, the combination sequence can be determined by the locksmith. For this, the shackle must be released and rapping the shackle will accomplish this action.

With the shackle hole free, the bolt can be pushed back against spring tension to see the wheel pack (Figure 1). The dial then can be turned right, left and right to line up the gates in the wheels. When lining up the wheels, notation should be made of the number for each wheel. Adding eleven to each dial reading will give the proper combination sequence.

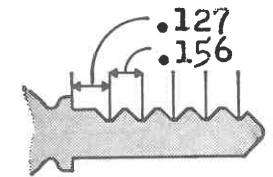
Direction of rotation of the dial is right, left, right, as follows: turn the dial right at least two full turns, stopping at first number. Then, turn left one complete rotation past first number, stopping at second number. Next, turn right and stop at the third number, after which the shackle can be pulled open.

**TAYLOR No. 721
PADLOCK**

**Manufactured by
Taylor Lock Company
Philadelphia, Pa.**



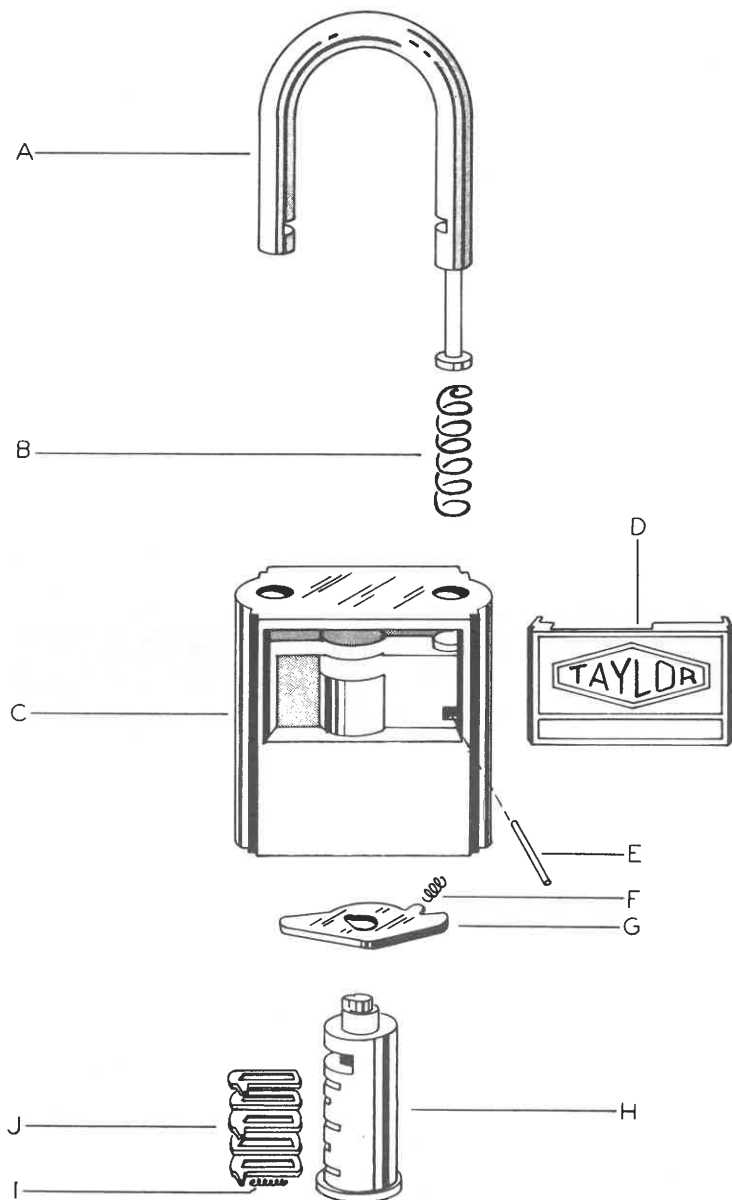
- A - Shackle
- B - Shackle Spring
- C - Case
- D - Bolt
- E - Bolt Spring
- F - Cylinder Housing
- G - Plug Retainer Pin
- H - Plug
- I - Bottom Pins
- J - Slide Plate for Pin Chambers
- K - Top Pin Springs
- L - Top Pins



0		5	.255
1	.326	6	.235
2	.315	7	.215
3	.295	8	.195
4	.275	9	.175

DISTANCE FROM
BOTTOM OF BLANK

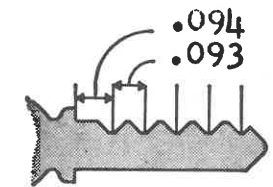
Because of the construction of this padlock, it is not practical to remove the cylinder for rekeying. The cylinder is secured into the case by the bottom edges of the case recess, which are peened over to provide the anchor for the cylinder. Attempts at straightening out the peened portions of the case usually will result in permanent damage. In some instances, such damage may not be objectionable and, for these situations, careful prying of the peened areas is possible for cylinder removal. Re-peening also can be done to refasten the cylinder after rekeying, which is done in the usual manner.



**TAYLOR No. 750
PADLOCK**

**Manufactured by
Taylor Lock
Company,
Philadelphia, Pa.**

- A - Shackle
- B - Shackle Spring
- C - Case
- D - Name Plate
- E - Shackle Retainer Pin
- F - Bolt Spring
- G - Bolt
- H - Plug
- I - Disc Tumbler Springs
- J - Disc Tumblers



0		5	.167
1	.247	6	
2	.227	7	
3	.207	8	
4	.187	9	

DISTANCE FROM
BOT TOM OF BLANK

The Taylor No. 750 padlock can be disassembled for servicing. The case is a die cast unit, having a large opening on one side. Fitting into this opening is a name plate, which is peened into position to form a closed body. Attached to the underside of the name plate is an inwardly projecting lug that serves as the cylinder retainer.

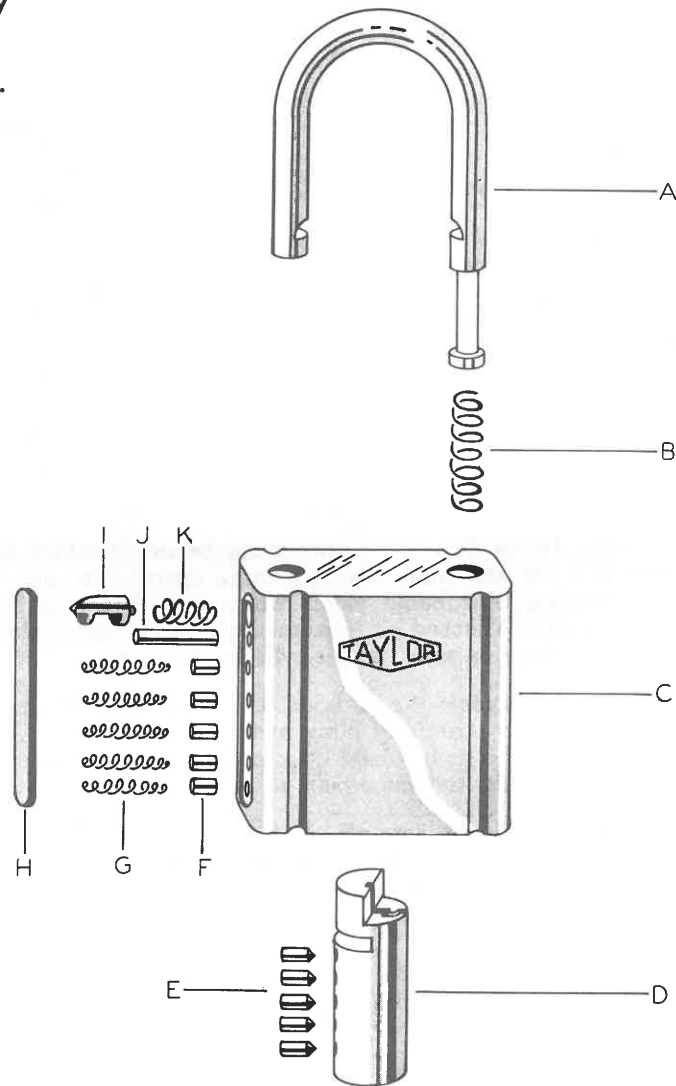
To disassemble the padlock, the name plate must be removed. This can be done by carefully filing away the peened edges of the case which extend over the name plate. Once a thin space is formed, a thin tool can be inserted under the name plate to pry it up.

With the name plate off, the bolt will be visible in the interior of the case. The bolt, which locks the shackle heel and toe, fits on the end of the cylinder and it can be removed by merely prying it up. The free cylinder then can be removed for regular rekeying.

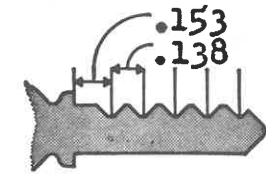
When reassembling this padlock, be sure to carefully refit the name plate and to peen the edges of the case so that it securely holds the plate in position.

**TAYLOR No. 781
PADLOCK**

Manufactured by
Taylor Lock
Company,
Philadelphia, Pa.



- A - Shackle
- B - Shackle Spring
- C - Case
- D - Plug
- E - Bottom Pins
- F - Top Pins
- G - Top Pin Springs
- H - Slide Plate
- I - Bolt
- J - Plug Retaining Pin
- K - Bolt Spring



0		5	.255
1	.326	6	.235
2	.315	7	.215
3	.295	8	.195
4	.275	9	.175

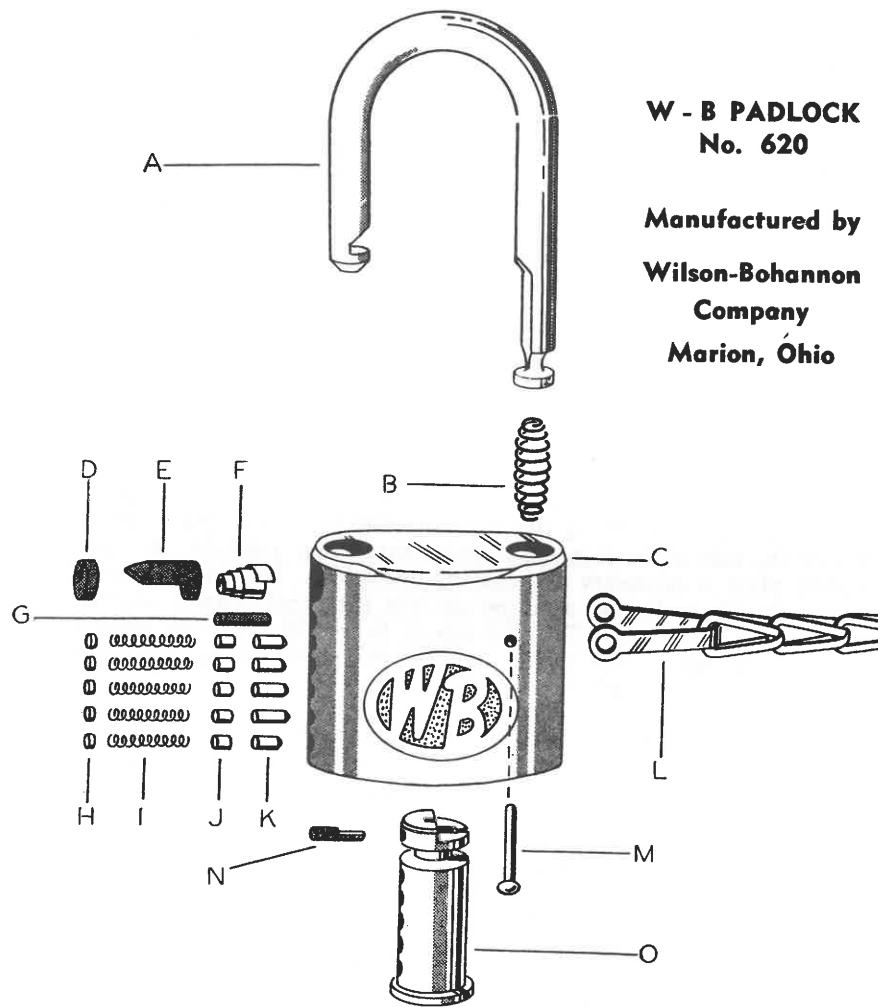
DISTANCE FROM
BOT TOM OF BLANK

The case of the No. 781 padlock is made of solid extruded brass and it has a slide plate covering the top pin chambers. The plate fits into a recess in the side of the case and is press fitted into position. Removal of this slide plate is necessary for rekeying operations. To remove this plate, open the shackle and insert a pin punch into the shackle hole, angling the punch toward the plate. Tap the punch to gently force the plate away from the case. Be careful not to damage the plate during removal since such damage will be visible upon replacement.

Removing the slide plate will permit the pins and springs to be dumped from the padlock, as well as the plug retaining pin. Subsequent removal of the plug will drop out the bolt and bolt spring since the plug serves as the retainer for the bolt.

In the event the shackle must be removed, drilling must be done to reach the shackle retainer pin. Drill at a point $3/16$ " down from the top of the case, in alignment with the downward line of the shackle.

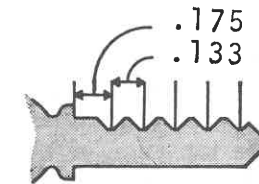
After rekeying, replace the bolt, bolt spring, and plug. Then, insert the plug retaining pin. Before replacing the slide plate in its recess, bend the plate to a slight angle so that it will fit under all edges of the recess. Tap gently to make the slide plate fit flush with the case. Dressing with a file and finishing cloth will hide all edges of the plate.



**W - B PADLOCK
No. 620**

**Manufactured by
Wilson-Bohannon
Company
Marion, Ohio**

- A — Shackle
- B — Shackle Spring
- C — Case
- D — Shackle Bolt Cap
- E — Shackle Bolt
- F — Shackle Bolt Spring
- G — Plug Retainer
- H — Pin Chamber Caps
- I — Springs
- J — Top Pins (Drivers)
- K — Bottom Pins
- L — Chain
- M — Shackle Retainer Pin (also anchors chain)
- N — Keyway Guard
- O — Plug



0		5	.263
1	.327	6	.247
2	.311	7	.231
3	.295	8	.215
4	.279	9	.199

DISTANCE FROM
BOTTOM OF BLANK

SERVICE NOTES

This padlock has an extruded case, pre-drilled for pin, plug, plug retainer and bolt holes. Plug is held in position by a single retainer pin, which rides in a groove in the back end of the plug.

Six pin chambers are located in the left side of the case (shackle toe side). All pin chambers are covered with caps which are press fitted into the chamber holes and finished flush with the case. Plug drivers are used in first five chambers with plug retainer pin resting in the sixth chamber. First chamber cap is located $5/32$ " up from bottom of case. Center of plug retainer cap is $13/16$ " up.

It is not necessary to drill out all chamber caps for rekeying, or to remove top pins. To rekey, drill out plug retainer cap and drop out retainer pin. Pick the plug and turn it away from shear line (either direction). Pull plug out slightly (to free cam tailpiece from shackle bolt); then, turn plug fully around so bottom of keyway rests under top pins. Insert "U" shaped wire hook into bottom of keyway to hold up top pins. Remove plug and rekey.

To replace plug, reverse removal. In order to seat cam with bolt, bolt must be depressed. Depress bolt either by locking shackle after plug is removed or by pushing bolt down with probe through shackle toe hole. With bolt depressed, slightly twist plug and plug will seat.

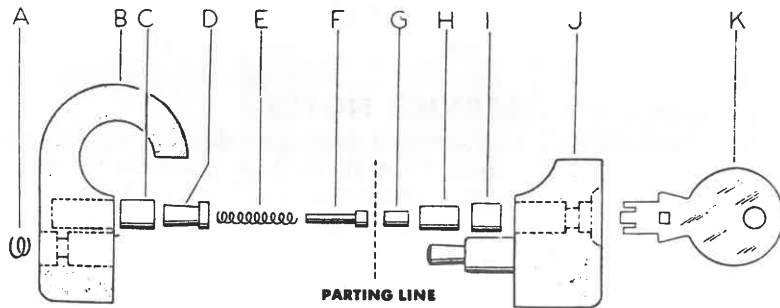
NO. 60C PADLOCK

Manufactured By
WISE LOCK COMPANY
 Cleveland, Ohio

This padlock uses a series of concentric tubes, rather than conventional pin or wafer tumblers, to effect its locking action. Because of these tubes, this padlock uses the distinctive key shown in the illustration below. The cuts are made in the front tip of the blade rather than on the top edge of the blade. The key number used for this padlock is Wise key No. 1145.

When the key is inserted into the padlock and pushed in, it creates the parting line as shown. Thus, turning the key when this line is created will rotate the body of the padlock to open position.

NOTE! THIS PADLOCK CANNOT BE TAKEN APART WITHOUT PERMANENT DAMAGE!

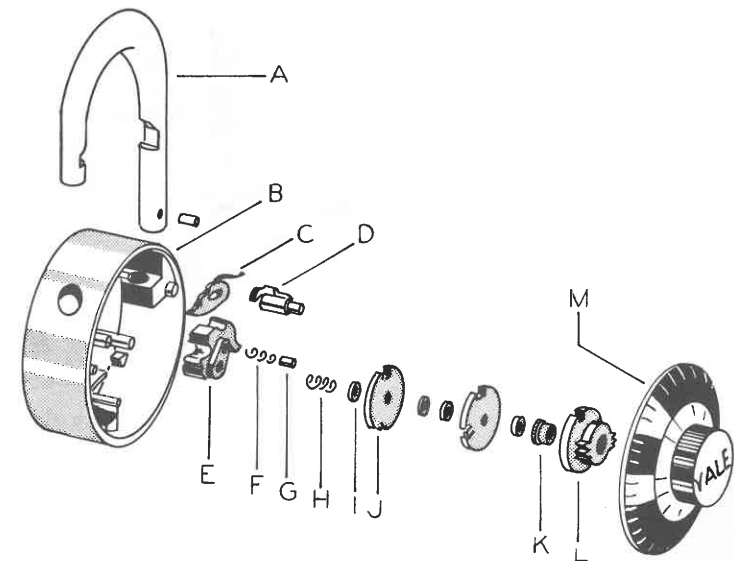


- | | |
|------------------------|------------------------|
| A—Shaft Spring | G—Center Tumbler |
| B—Padlock Case | H—Inside Tumbler Tube |
| C—Outside Driver Tube | I—Outside Tumbler Tube |
| D—Inside Driver Tube | J—Rotating Body |
| E—Center Driver Spring | K—Key |
| F—Center Driver | |

YALE No. 515 COMBINATION PADLOCK

Manufactured by
 Yale and Towne
 Lock and Hardware
 Division,
 Eaton Yale &
 Towne, Inc.
 Rye, New York

- A - Shackle
- B - Case
- C - Scrambler spring lever
- D - Scrambler
- E - Bolt
- F - Aligning pin spring
- G - Aligning pin
- H - Tumbler spring
- I - Spacer washer
- J - Tumblers
- K - Wheel bushing
- K - Wheel bushing
- L - Drive wheel
- M - Dial 7 dial ring assembly



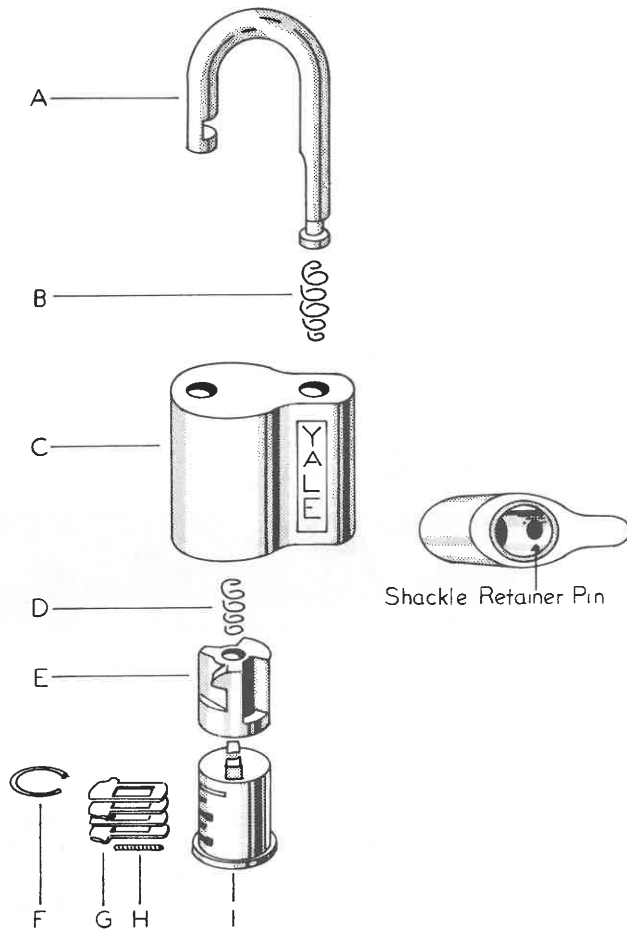
The Yale No. 515 padlock is a die cast combination lock with three pre-set tumblers. Because of its construction, the lock cannot be satisfactorily serviced by the locksmith. Any attempt to remove the dial ring assembly causes fracture of the die cast case which cannot be repaired.

Direction of dial rotation is right-left-right, with opening as follows: Turn dial right, two or more full turns, stopping at the first number. Then, turn dial left one full turn past the first number to the second number. Next, turn dial right to the third figure of the combination. Pull shackle to open.

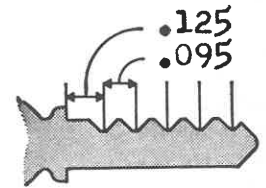
The lock has a built-in scrambler, which is activated when the shackle is pushed into the case for relocking.

**YALE No. 600
PADLOCK**

Manufactured by
Yale Lock and
Hardware Division,
Eaton Yale &
Towne, Inc.,
Rye, N. Y.



- A - Shackle
- B - Shackle spring
- C - Case
- D - Bolt spring
- E - Bolt cam
- F - Plug retainer snap ring
- G - Disc tumblers
- H - Disc springs
- I - Plug



0		5	.170
1	.250	6	
2	.230	7	
3	.210	8	
4	.190	9	

DISTANCE FROM
BOTTOM OF BLANK

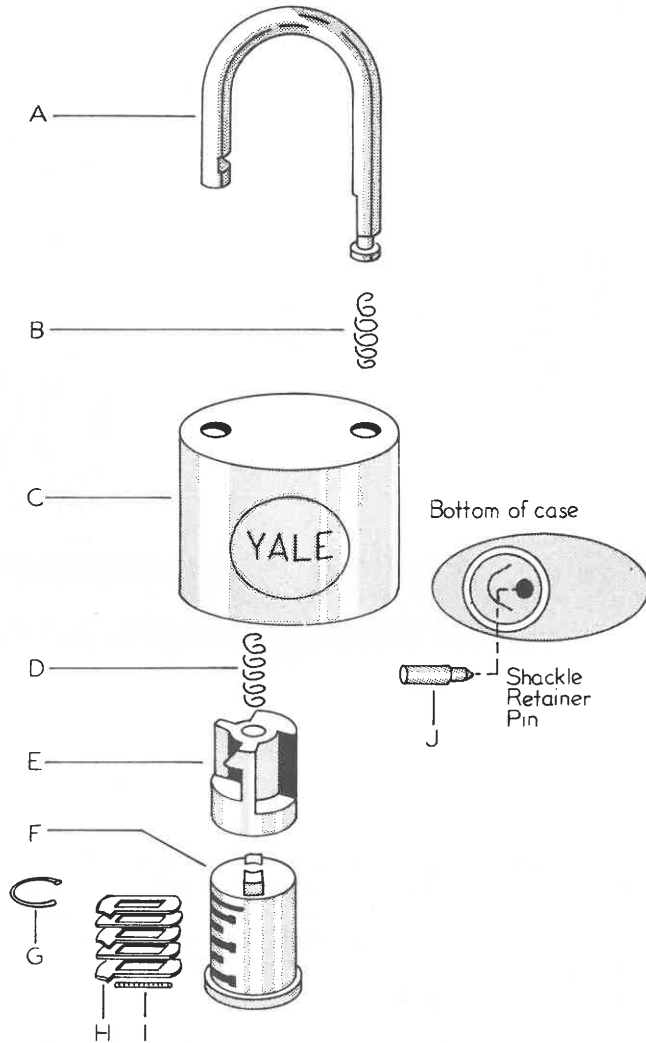
The tapered shape of the die cast case used for this padlock does not affect the method for removing the plug for rekeying. The plug has four disc tumblers and it is held into the case by a retainer snap ring, located in the fifth position in the plug. The plug retainer is visible through the open shackle hole. Thus, a bent pointed tool can be inserted into this open hole to disengage the plug retainer.

When removing the plug, the bolt and cam unit will drop from the case. Note that this is a combination part and that it operates correctly in a clockwise rotation. Also, the shackle retainer pin may shake loose from its position. The pin sets in the case at an angle with the shackle and gentle tapping causes the pin to shake free.

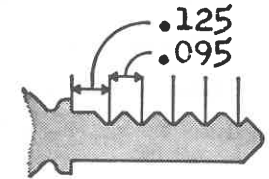
When replacing the plug after servicing, be sure to properly mate the bolt and cam with the plug for the correct clockwise rotation.

**YALE No. 713J
PADLOCK**

Manufactured by
Yale Lock and
Hardware Division,
Eaton Yale &
Towne, Inc.,
Rye, N. Y.



- A - Shackle
- B - Shackle spring
- C - Case
- D - Bolt Spring
- E - Bolt and Cam
- F - Plug
- G - Plug Retaining Ring
- H - Discs
- I - Disc Springs
- J - Shackle Retainer Pin



0		5	.170
1	.250	6	
2	.230	7	
3	.210	8	
4	.190	9	

DISTANCE FROM
BOTTOM OF BLANK

The Yale No. 713J padlock is a die cast disc tumbler lock that can be disassembled for rekeying. The plug has five discs and it is held into the case by a retainer snap ring, located in the sixth position in the plug. The plug retainer is visible through the open shackle hole. And, a bent pointed tool can be inserted into this open hole to disengage the plug retainer.

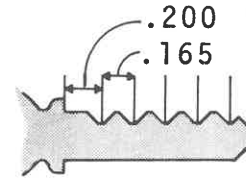
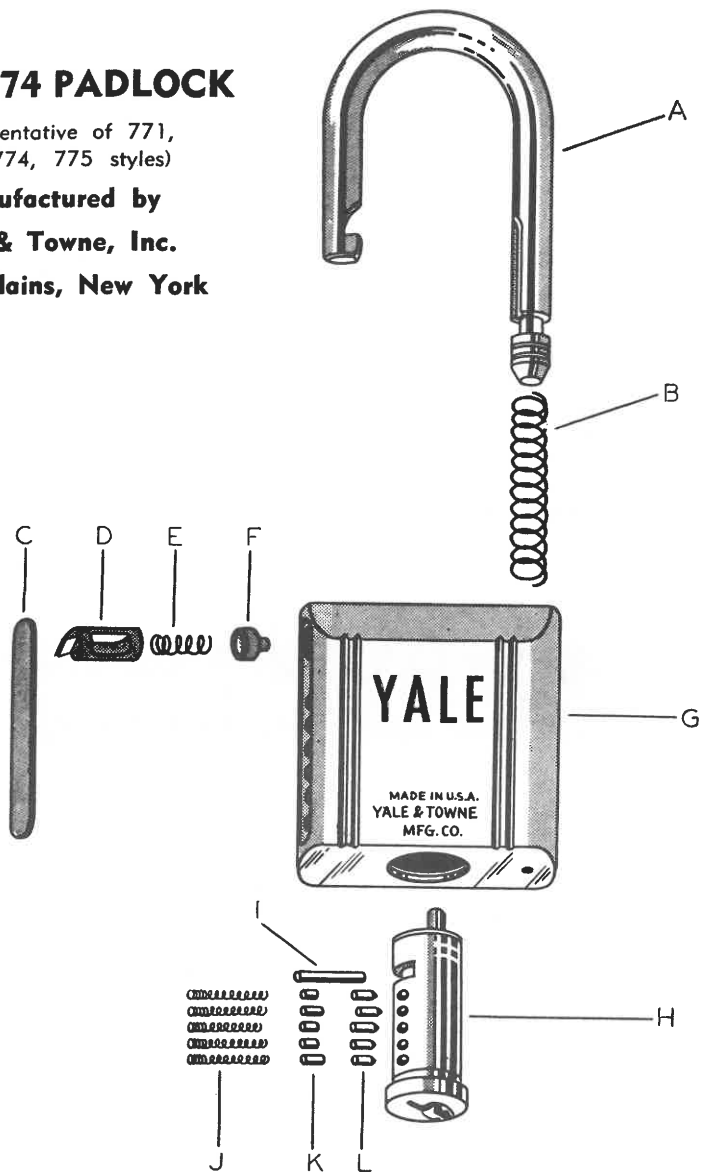
When removing the plug, the bolt and cam unit will drop from the case. Note that this is a combination part and that it operates correctly in a clockwise rotation. Also, the shackle retainer pin may shake loose from its position. The pin sets in the case at an angle and gentle tapping causes it to shake free.

When replacing the plug after servicing, be sure to properly mate the bolt and cam with the plug for the correct clockwise rotation.

YALE 774 PADLOCK

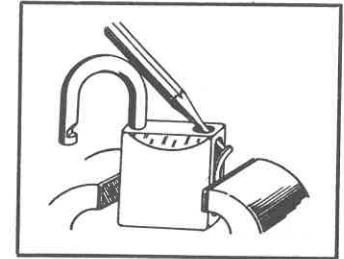
(Representative of 771,
773, 774, 775 styles)

Manufactured by
Yale & Towne, Inc.
White Plains, New York



0	.320	5	.225
1	.301	6	.206
2	.282	7	.187
3	.263	8	.168
4	.244	9	.149

DISTANCE FROM
BOTTOM OF BLANK



- | | |
|---|----------------------|
| A—Shackle | G—Case |
| B—Shackle Spring | H—Plug |
| C—Pin Hole Cover Plate | I—Plug Retainer Pin |
| D—Shackle Bolt | J—Springs |
| E—Bolt Spring | K—Top Pins (Drivers) |
| F—Shackle Stop (anchors heel
of shackle) | L—Bottom Pins |

This padlock is made with five or six pin cylinders. Pins are loaded through slot on side of case (beneath toe of shackle). Loading slot is covered with heavy cover plate, which also holds springs and pins in chambers. Cover plate is wedge-fitted into position. To rekey or to remove plug, open shackle. Clamp case in vise and insert rod into toe hole. Angle rod through side hole to contact cover plate. Tap rod to force plate out of loading slot. Remove cover plate carefully to expose springs and pin holes (See Insert).

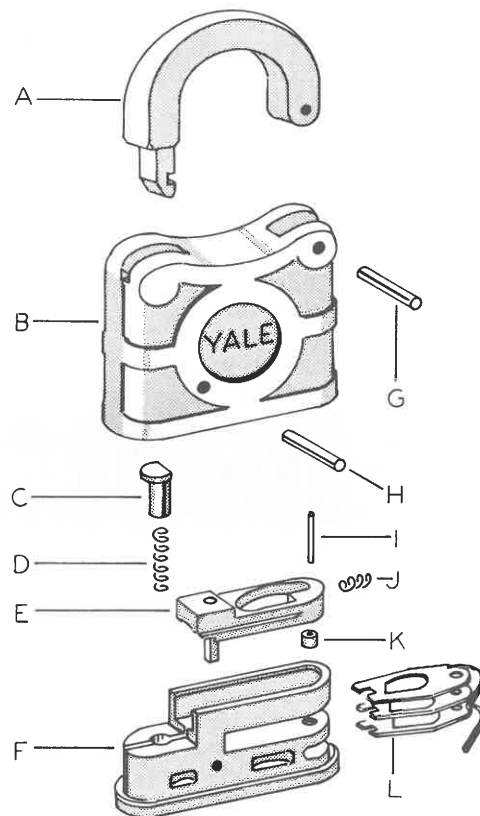
Lift out springs. Then, remove case from vise and cover loading slot with thumb. Turn case over to drop out pins, one chamber at a time, moving thumb as needed to expose loaded chambers. Plug is held by a loose fitting plug retainer pin which will drop out easily.

Back end of plug is fitted with extra plate to block manipulation of bolt. Plate is held in position by tight fitting cam pin forced into hole in rear of plug. Do not remove pin or plate.

Load pins and springs *with plug installed in case*. Tap cover plate into loading slot to retain springs and pins. Polish cover plate flush with case.

**YALE No. 833
LEVER PADLOCK**

Manufactured
by Yale Lock
and Hardware
Division,
Eaton Yale &
Towne, Inc.,
Rye, N. Y.



- A - Shackle
- B - Case
- C - Vertical Bolt and Shackle Opening Pin
- D - Bolt Spring
- E - Cross Bolt
- F - Housing
- G - Bolt Hinge Pin
- H - Housing Retainer Pin
- I - Hinge Pin For Levers
- J - Cross Bolt Spring
- K - Lever Bushing
- L - Levers

The Yale No. 833 padlock is a lever lock made entirely of cast bronze and brass. It has an outer case into which an inner housing fits. All of the internal parts are mounted in the inner housing, and these include three levers, a cross (horizontal) bolt and a vertical bolt.

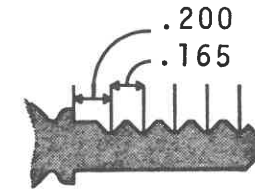
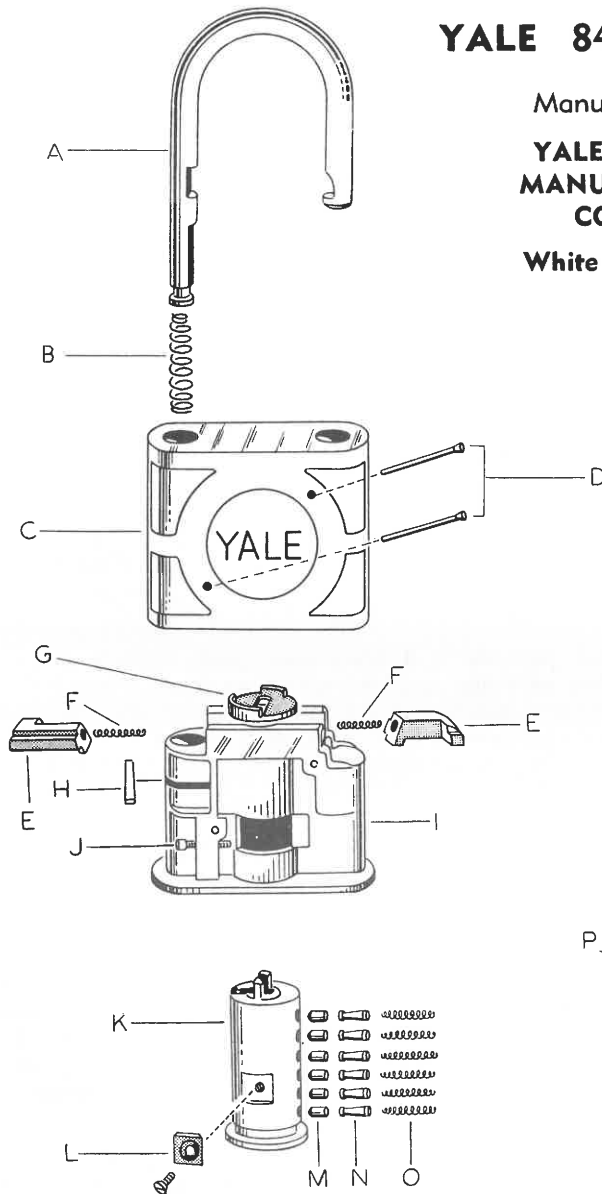
In its operation, the three levers will align the gates with a post on the cross bolt. When alignment occurs, continued rotation of the key will retract the cross bolt, which then releases the vertical bolt to open the shackle. It should be noted that the cross bolt requires a cut on the key for its operation.

The fact that the cross bolt is directly operated by the key must be considered in picking efforts. In order to properly align the lever gates with a pick, the cross bolt must be under turning pressure. A "T" shaped tool, engaged into the cross bolt, can be used to apply this pressure. With the tool inserted, and turning pressure constantly applied, a separate pick can be used to align the lever gates.

In order to rekey or disassemble the lock for service, the inner housing must be separated from the case. A retainer pin holds the housing in the case. This pin is located 3/8" up from the bottom of the case and 9/16" in from the left side of the case (name plate up). When removing the inner housing, be careful not to bend the lever springs.

YALE 840 PADLOCK

Manufactured By
**YALE & TOWNE
 MANUFACTURING
 COMPANY**
 White Plains, N. Y.



•	.320	•	.225
1	.301	•	.206
2	.282	7	.187
3	.263	•	.168
4	.244	•	.149

DISTANCE FROM
 BOTTOM OF BLANK

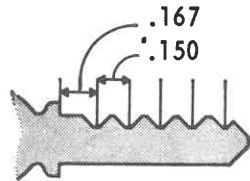
- A — Shackle
- B — Spring
- C — Case
- D — Retainer Pins
- E — Shackle Bolts
- F — Shackle Bolt Springs
- G — Cam
- H — Shackle Retainer
- I — Plug Housing
- J — Cam Adjusting Screw (6 pin only)
- K — 6 Pin Plug
- L — Cam and Cam Screw (6 pin only)
- M — Bottom Pins
- N — Mushroom Pins
- O — Springs
- P — Plug Retainer Pin (5 pin only)
- Q — 5 Pin Plug

To open lock by drilling, drill at holes shown in case "C" (when shackle is on left). Punch out retainer pins and pull plug housing from case. Pull out as far as possible to expose shackle retainer. Punch out shackle retainer and remove housing.

To remove plug, remove retainer. Insert key (or pick lock) and turn key to one-quarter position (clockwise). At the same time, hold hand over shackle bolts to catch them as they are released from cam. Turning key 1/4 turn will rotate cam so that lugs of bolts (which ride on lugs during rotation) free from cam. With follower, push out plug after first turning it completely around so that bottom pins are exposed at retainer plate slot. Note, if plug is pushed out when in the 1/4 turned position, a top pin could jam in the retainer slot.

**SLAYMAKER
No. 66 PADLOCK**

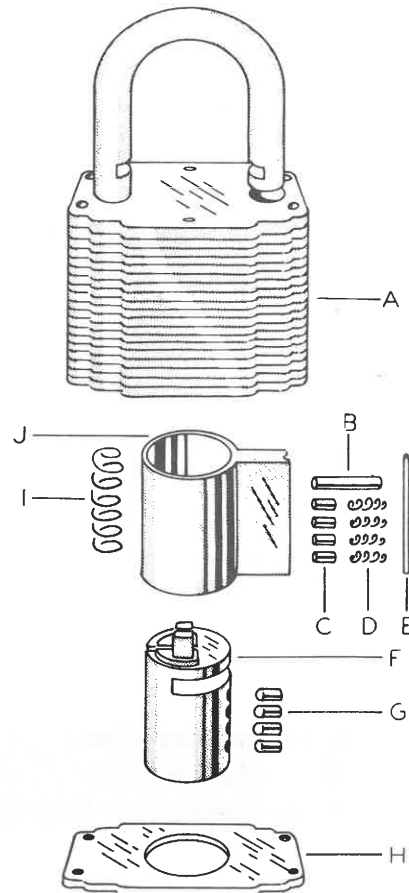
Manufactured
by Slaymaker
Lock Company,
Lancaster, Pa.



0		5	.274
1	.326	6	.261
2	.313	7	
3	.300	8	
4	.287	9	

DISTANCE FROM
BOTTOM OF BLANK

- A - Shackle and Laminated Case
- B - Plug Retainer Pin
- C - Driver Pins
- D - Springs
- E - Slide Cover for Pin Chambers
(a wire)
- F - Plug
- G - Bottom Pins
- H - Bottom Case Plate



The No. 66 laminated steel padlock by Slaymaker is a pin tumbler unit that can be serviced by the locksmith, when such service can be justified. The steel plates of the laminations are held together by four long rivets, which are press fitted through the case. This makes it impractical to disassemble the lock completely. However, the bottom case plate can be removed. To do this, use a hollow mill to shear off the rivet heads. A hollow mill will leave sufficient metal for re-peening of the bolts. Once the heads are cleared, the bottom plate can be removed to expose the cylinder which can be just lifted out of the case. Servicing the cylinder is done in the usual manner.

When reassembling the lock, insert the cylinder and replace the bottom plate on the four bolts. Check the action of the lock and then re-peen the bolts to secure the case.